SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

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Airfield Matting Work Awarded

Convair division of General Dynamics will produce 5,000,000 square feet of portable airfield matting for use by any type of Air Force plane under a contract from Kaiser Aluminum Chemical Corp., Oakland, Calif., it was announced late last month.

Kaiser is prime contractor in the mats program with the U.S. Army Waterways Station, Vicksburg, Miss. as contracting agency for the U.S. Air Force.

Convair will assemble the aluminum mats from Kaiser-furnished material on the semi-automated line which turned out similar airstrip matting over two years ago for the Marine Corps under a Navy contract.

However, the mats to be furnished under the current contract are of lighter weight than the former type, said C. L. Jackson, Convair mats project manager. These new mats, incorporating an aluminum honeycomb core, weigh only four pounds per square foot.

Jackson said that the airstrips can be laid in less than three days. The mats can be used on all types of soil surfaces, from wet clay to sand, with only rough grading of the surface needed before the mats are put in place and hooked together to provide a solid, smooth landing field.

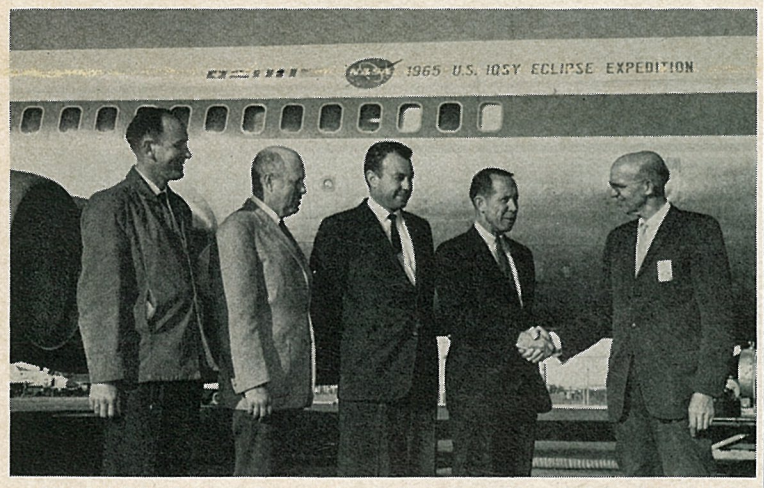
Fabricating process will include specialized welding and bonding equipment developed by Convair, painting, and application of a non-skid finish to the mats. As the mats come off the line they will be automatically stacked on pallets for shipping.

The mat line at the Lindbergh Field plant is being modified for the new type and is scheduled to be ready for production in April.

Convair began development of portable airfield matting in late 1961 under an initial design study contract from the Naval Air Materiel Center, Philadelphia, Pa.

Follow-on contracts extended into 1963 when Convair was commissioned to fabricate aluminum die cast core mats for the main impact area of the Marine Corps landing field at Twentynine Palms, Calif.

Intensive testing of the new honeycomb core mat at the Vicksburg Test Center has shown its capacity to meet all requirements, said Jackson, who has headed Convair's portable matting program since its inception.



READY TO GO — Convair's E. F. Kotnik (far right) of 880/990 program office says farewell to NASA crew which flew NASA 990 back to Ames Research Center after maintenance check and instrumentation installation at Convair. From left are Frank Brasmer, Northrop flight engineer, and Jack Rogers, Convair flight engineer, both assigned to NASA; Pilots Robert Ennis and Fred Drinkwater of Ames flight operations.

NASA's 990 Flying Laboratory Back at Ames After Overhaul

NASA's Convair-built 990 flying laboratory was flown to its home base at Ames Research Center, Mountain View, Calif., early this month following more than two months at San Diego for maintenance check and installation of new instrumentation for future research tasks.

Convair Service Center conducted the 500-hour maintenance check, including overhaul and updating of components. Crews were under direction of L. F. Lau, Convair Service Center chief of operations.

Additional flight test instrumentation and hydraulic system separation was installed for aeronautics research in landing systems and supersonic transport techniques under a separate contract administered by Convair service parts.

Clarence Strand, foreman in experimental, was responsible for installation of the new instrumentation accomplished in Lindbergh Field plant experimental yard. R. J. Dunn, Convair electronic group engineer, headed up the engineering instrumentation task.

Jack Rogers, Convair flight engineer now assigned to the NASA plane, was in San Diego throughout the program to provide liaison with Ames. Program coordination was directed by E. F. Kotnik of the Convair 880/990 program office.

The NASA 990 was converted at Convair to a flying laboratory for space and aeronautics research early this spring in time for the May 30 solar eclipse. It was returned to San Diego for the current updating immediately after it completed its chase of the Ikeya-Seki comet in November, gathering scientific information on the comet's chemical composition.

National Advertising Campaign Under Way

The first in a series of General Dynamics advertisements is appearing in national magazines this month. It is reproduced on page 3 of this issue of GD/NEWS.

Retirement Plan Improved For Salaried

Important revisions in the General Dynamics retirement plan for salaried employes who are not represented by a union became effective with the Jan. 1 changes in Social Security. Improvements, authorized by the General Dynamics Board of Directors, are subject to approval of the Internal Revenue Service.

Division executives hailed the changes as another example of General Dynamics' constant interest in the welfare of employes and a direct result of continuing studies aimed at maintaining overall coverage among the best in industry.

Salaried employes will receive increased retirement benefits while their contributions to the plan have been reduced.

Employe retirement plan contributions of 2½ per cent now apply only on salary in excess of $6,600. Since employes previously contributed on earnings in excess of $4,800, the change provides a maximum $45 decrease in contributions and a partial offset to the increased Social Security tax (**GD/NEWS**, Dec. 22, 1965).

The benefit formula was improved to 1.1 per cent of the first $6,600 of salary and 2 per cent on salary in excess of this amount. This change results in increased benefits at all salary levels.

Retirement plan members who have attained age 40 with 10 years of service will now have a vested right to benefits earned to termination date. Previously, plan members were not fully vested until age 45 and 15 years of service.

The plan's alternate benefit formula, which establishes a minimum benefit for members who retire at 65, provides a retirement benefit of 3 per cent of salary between ages 50 and 65 less the primary Social Security benefit. This formula was changed so that only 85 per cent of the Social Security benefit will be used to reduce benefits, instead of 100 per cent.

Convair Integrates Agena Back-up

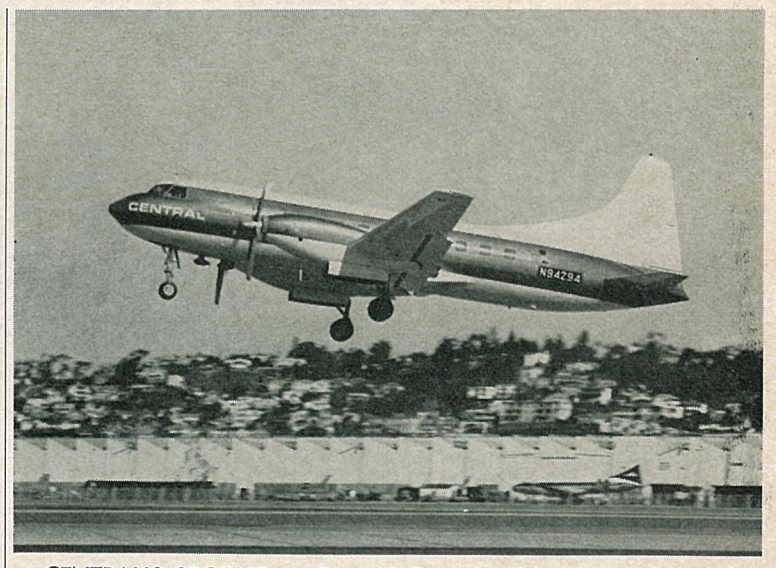
Convair division is serving as integrating contractor for the Augmented Target Docking Adapter (ATDA) being built for use in Gemini VIII in-space docking maneuvers in the event a modified Agena vehicle is not ready for launch.

Atlas launch vehicle 5302, now at Kennedy Space Center, is undergoing minor autopilot and pressurization system changes needed to lift the ATDA, which will have no propulsion system. Atlas SLV 5303 is being trucked from the Kearny Mesa plant to Kennedy Space Center this month for boosting the Agena if it is ready for launch in March.

R. W. Keehn, assistant program director-SLV, said the ATDA will weigh only 2,400 pounds at launch, compared with 18,000 pounds for the Agena, enabling SLV 5302 to launch it directly into a 185 statute-mile circular orbit. The ATDA's weight in orbit will be 1,700 pounds.

Convair will have responsibility for coordination and seeing that ATDA equipment provided by various contractors functions properly for use in the Gemini VIII mission. E. R. McFadden is

(Continued on Page 2)



CENTRAL'S SECOND — Second Convair 600 converted to turbojet power at Convair for Central Airlines took off from Lindbergh Field on Dec. 20 for flight to home base at Fort Worth, Texas. First Convair 640 (340/440) delivered to Hawaiian Airlines was flown to Honolulu from San Diego on Dec. 10.

Ground Crewmen On 600 Praised

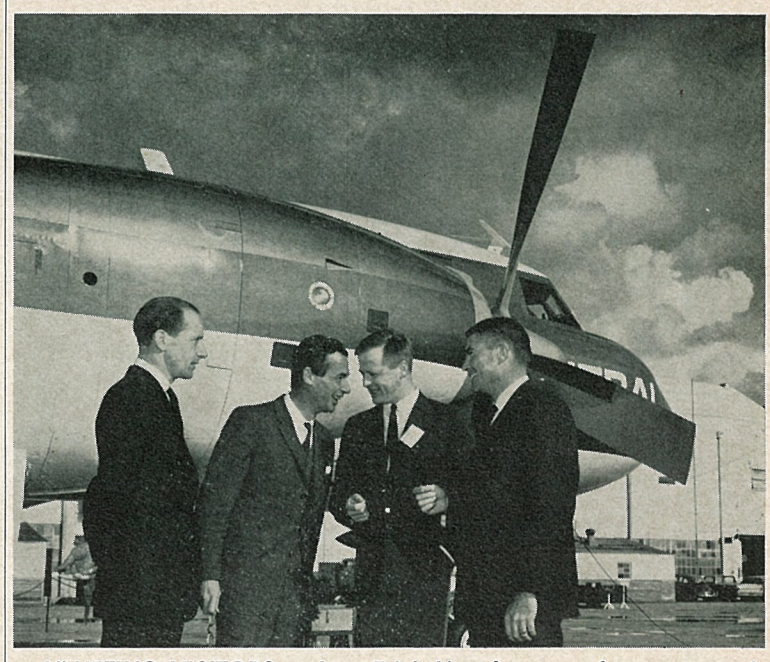
Ground crewmen who worked in the Convair 600 flight test program at Edwards AFB have been commended by Jack L. Bowers, Convair division general manager, for the excellence of their work.

Bowers said the flight testing for FAA certification for both the 240-D and 340/440-D planes was accomplished in a very expeditious manner.

"No flights were delayed or aborted because of mechanical discrepancies," he said. "It is my understanding everyone pitched in to make it a real team effort. I want to express personal appreciation for a job well done."

F. G. Brown was in charge of

(Continued on Page 2)



LINJEFLYG VISITORS — Lars Erick Ljunghorn, performance engineer of Linjeflyg, Swedish airline (left), and Capt. Olof Olemyr, chief pilot (second from right), discuss Convair 600 turbojet transport with Convair's P. F. Mouritz (second from left) and Don Germeraad (right) during mid-December evaluation visit.

Swedish Airline's Chief Pilot Spends Hour at 600's Controls

Capt. Olof Olemyr, chief pilot of the Swedish domestic airline, Linjeflyg, praised the handling characteristics of the Convair 600 after an hour at the controls during an evaluation of the turbojet transport at San Diego last month.

Capt. Olemyr and Lars Erick Ljunghorn, Linjeflyg performance engineer, spent three days, Dec. 13-15, at Convair reviewing the 600 version of the Convair-Liners with briefings covering the entire program — performance, and systems of the two-engine craft powered by Rolls-Royce Dart engines.

Don Germeraad, Convair technical chief-crew performance, was co-pilot on the demonstration flight of the 600/240. Germeraad has been pilot on the 600 prototypes during FAA certification.

Among Convair men presenting briefings to the two Linjeflyg representatives were P. F. Mouritz, manager of commercial sales, R. R. Hoover, A. J. Savard, R. L. Runnalls, T. L. Heid. P. M. Prophett conducted Capt. Olemyr and Ljunghorn on a tour of the Convair Service Center, where modification of Convair-Liners to the new 600 and 640 versions is under way.

Linjeflyg, which has ten Convair-Liner 340/440s in operation, is interested in converting its craft to some type of turbojet power.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between Jan. 1 and Jan. 15.

Thirty-year: Dept. 053-0, M. Rosenbaum; Dept. 978-3, H. J. Schnaubelt.

Twenty-five-year: Dept. 031-0, O. W. Brotherton, M. L. Salefski; Dept. 041-0, A. E. Bowers, E. L. Risner; Dept. 250-0, C. J. Kruk; Dept. 300-3, H. B. McIntosh; Dept. 400-1, N. Sainz; Dept. 400-4, E. N. Goad; Dept. 403-1, E. G. Gray, L. W. Patterson; Dept. 509-0, H. P. Williams; Dept. 511-1, C. J. Bolin; Dept. 532-1, W. G. Ravenscroft; Dept. 576-1, M. G. Rustin Jr.; Dept. 588-0, R. L. Benson; Dept. 637-0, C. F. Osberg; Dept. 664-0, F. L. Beale.

Dept. 715-0, C. E. Schultz; Dept. 733-0, M. M. Goodhart, R. E. Reeves; Dept. 756-0, C. L. Good; Dept. 759-0, J. F. Koby; Dept. 765-0, R. T. Bauman; Dept. 780-2, R. L. Weide; Dept. 817-0, R. A. Dirkschneider; Dept. 838-3, R. C. Pfister; Dept. 839-1, L. Nigro; Dept. 974-4, L. E. Turner; Dept. 976-3, C. R. Addy, C. E. Caffey; Dept. 976-4, E. C. Cheney.

Twenty-year: Dept. 143-5, W. J. Seitz; Dept. 250-2, E. G. Kiener; Dept. 423-0, V. A. Petricola; Dept. 451-0, W. A. Bates; Dept. 643-0, A. Sanchez; Dept. 759-0, E. Caliendo; Dept. 761-0, F. A. Chase; Dept. 780-2, S. L. Ganzy; Dept. 832-3, J. P. Erpenbeck, H. S. Schulte.

Fifteen-year: Dept. 015-0, H. B. Adamson; Dept. 041-0, E. P. Osgood; Dept. 057-0, H. E. Hainley; Dept. 130-2, J. B. George; Dept. 142-2, H. E. Kessler; Dept. 143-1, V. S. Danzl; Dept. 143-4, K. L. Beeman; Dept. 250-1, J. P. Whiddon; Dept. 250-3, V. J. Farrell; Dept. 251-1, T. A. Hall, J. T. McElroy, H. A. Means;

Dept. 400-1, A. D. Poling; Dept. 400-3, C. Belden Jr.; Dept. 405-0, S. Catalano; Dept. 511-1, A. Capossere, D. F. Conklin, J. W. Currie; Dept. 571-7, T. R. Daugherty; Dept. 673-0, F. J. Lukas; Dept. 763-0, J. A. Moore; Dept. 780-1, R. M. Cooper; Dept. 818-1, H. M. Oliver; Dept. 818-2, M. Lobato; Dept. 838-1, R. K. Johnson; Dept. 838-3, L. W. Atkinson; Dept. 839-2, T. L. Harrison, J. E. Olson; Dept. 970-1, W. J. Flanagan; Dept. 973-3, C. H. LeClerc.

Ten-year: Dept. 001-0, H. G. Mondy; Dept. 015-0, A. T. De Casas, J. J. Marino; Dept. 058-0, J. L. Gallant; Dept. 130-1, C. E. Prewitt; Dept. 142-4, H. L. Berry; Dept. 143-2, E. McLeod; Dept. 143-4, G. E. Tuggey; Dept. 143-6, R. W. Edge; Dept. 170-1, R. R. Stacy; Dept. 193-3, J. R. Paulson; Dept. 226-0, R. M. Sherman; Dept. 250-0, J. W. Stevenson; Dept. 250-1, I. L. Harris, H. B. Heringhaus; Dept. 250-2, B. J. McNutt; Dept. 300-3, F. L. West; Dept. 401-0, G. V. McKeon; Dept. 405-0, R. B. Ponse; Dept. 491-0, S. A. Wolfe.

Dept. 524-2, D. E. Kenyon; Dept. 531-2, H. I. Tani; Dept. 543-2, J. C. Rock; Dept. 551-2, R. Leffler; Dept. 575-3, L. F. Miller; Dept. 576-1, M. W. Bemus, D. S. Duran; Dept. 588-2, T. F. Reed; Dept. 588-3, M. L. French; Dept. 596-0, S. Pountney; Dept. 630-0, W. F. Miller; Dept. 643-1, J. M. Campbell; Dept. 656-0, L. R. Willett; Dept. 662-0, S. H. Shelton; Dept. 731-0, J. L. Vincent; Dept. 756-0, V. Smith; Dept. 763-0, G. M. Esslinger, W. G. Schultz; Dept. 780-4, M. B. Newman.

Dept. 816-1, L. D. Cousins; Dept. 819-0, H. C. Yoakum; Dept. 835-2, R. E. Cotner; Dept. 835-4, L. Jones; Dept. 839-2, F. Nichols Jr.; Dept. 950-0, E. T. Trapp; Dept. 951-4, J. H. Azeka; Dept. 963-4, J. R. Garner; Dept. 967-3, J. E. Bersagel; Dept. 974-4, C. V. Hawks.

ELECTRONICS

Fifteen-year: Dept. 4074, M. R. Fontenot; Dept. 6857, D. L. Hill.

Ten-year: Dept. 6867, I. S. Swanson.

The following service emblems were presented during December, 1965.

Twenty-five year: Dept. 6867, C. W. McKerlie.

Fifteen-year: Dept. 4073, M. M. Gimenez; Dept. 6869, O. L. Willoughby; Dept. 7083, J. H. Cooper, R. E. Kenyon.

Ten-year: Dept. 1763, P. M. Jepson, Dept. 6859, H. K. Shirley; Dept. 6867, J. Jancsi.

Awards

CONVAIR

Employe Suggestion awards approved for the period ending Dec. 20.

Dept. 015, V. J. Rocco; Dept. 024, J. P. Kany; Dept. 113, N. D. Jones, R. D. Qua; Dept. 128, D. P. Ryan; Dept. 140, V. D. Malone; Dept. 141, R. A. Montgomery; Dept. 191, V. R. Pieters II (two awards); Dept. 194, F. L. Patton; Dept. 400, S. W. Kellogg; Dept. 420, I. G. Rooder; Dept. 571, N. M. Robinson; Dept. 644, L. O. Lyte; Dept. 760, W. J. Merkel; Dept. 763, E. L. Carnes, L. W. Howerton; Dept. 821, M. F. Gonzales; Dept. 832, S. Petty; Dept. 957, R. B. Kalanquin; Dept. 973, T. A. Szejn.

Invention Disclosures

CONVAIR

AGAMATA—B. N., Dept. 551-2, and S. C. MAKI, Dept. 551-3. Driver for a D. C. Motor.

ARMSTRONG—Dr. R. C., Dept. 592-0. Negative Pressure Breathing Control Device.

MAKI—S. C., Dept. 551-3. Torque-Velocity Extender for On-Off Drive of Electric Motors.

QUALLS—H. W., Dept. 663-0. Package Ejection for Satellites.

VAUGHAN—D. H., Dept. 512-2. Expandable Structure — Space Frame.

Deaths

ELECTRONICS

FOGERTY — John W., Dept. 4077. Died suddenly Dec. 29. Survivors include his wife, Lu Alice, Convair, Dept. 850-4.

Papers Presented

CONVAIR

EULBERG—A. C., R. C. HUYETT, F. E. JARLETT, Dept. 581-5. "The Need for L/D in a Manned Entry Vehicle." AFSC/ASSET Advanced Lifting Re-entry Technology Symposium, Miami Beach, Fla., Dec. 14-16.

McCUNNEY—S. J. and E. J. RUSS, Dept. 592-0. "Oxygen Regeneration for the NASA LRC Advanced Prototype Life Support System." American Institute of Chemical Engineers 58th Annual Meeting, Philadelphia, Pa., Dec. 7.

SHACKFORD—R. W., Dept. 581-1. "A Study of Dormant Missile Systems." Rome Air Development Center's Storage and Dormant Operating Data Meeting, New York, Dec. 8.

THAYER—J. R., Dept. 584-2. "Atmospheric Diffusion Tests with Tracer Materials and Fluorine." CPIA/Chemical Propulsion Information Agency Working Group on Hazards, Sacramento, Calif., Dec. 7-9.

In-Plant Training

ORIENTATION

NEW EMPLOYES — Educational services staff. Lindbergh Field, ext. 491. Bldg. 14 auditorium, Tuesday, Jan. 11, 8 a.m. and 4:30 p.m. Kearny Mesa, ext. 1931, Bldg. 17, Room 3, Monday, Feb. 7, 8 a.m.

PROFESSIONAL/TECHNICAL

SUPERVISORS SEMINAR ON NPC 200-4 (Quality Requirements for Hand Soldering) — Will Weidenfeller, Kearny Mesa, ext. 1931. Jan. 24 through Jan. 28, 10 hours, 9 to 11 a.m. daily. Room 9, Bldg. 17, Kearny Mesa.

F&CD-IR — Hal Rubin, Lindbergh Field, ext. 491. Call for future schedule.

MILLING MACHINE OPERATORS (On-the-Job Training) — Eight hours per day, 26 weeks. Lindbergh Field, Bldg. 3. Coordinator, Wayne Turner, ext. 491, Lindbergh Field.

RELIABLE ELECTRICAL CONNECTIONS — Educational services staff. For information and quota call ext. 1931, Kearny Mesa. Weekly 7 a.m.-3:45 p.m.; Room 10, Bldg. 17, Kearny Mesa.

AFTER HOURS TRAINING IN-PLANT

CITY COLLEGE SPRING COURSES—Registration today and tomorrow (Jan. 12-13), Room 2, Bldg. 17, Kearny Mesa, 3:30-5:30 p.m. Courses offered: Introduction to Digital Computers; Computer Logic & Circuitry; Calculus for Electronics; Math for Electricity & Electronics; Introduction to Technical Writing; Advanced Technical Writing; Introduction to Supervision; Blueprint Reading. Course descriptions and applications at educational services offices. For information contact Dick Forrest, ext. 1931, Kearny Mesa; Wayne Turner, ext. 491, Lindbergh Field.

BLUEPRINT READING — Bill Sherman, ext. 491, Lindbergh Field. Ends Jan. 26. Monday and Wednesday, 3:45-6:15 p.m., Bldg. 14, Room 5.

OUT-OF-PLANT

SAN DIEGO STATE COLLEGE — Catalogues are available at Convair educational services offices, both Kearny Mesa and Lindbergh Field plants.

UNIVERSITY OF CALIFORNIA EXTENSION, SAN DIEGO — Catalogues for the spring semester are available at Convair educational services offices, Kearny Mesa and Lindbergh Field plants.

TUITION REFUNDS—Employes must submit a request (Form A346) to educational services no later than **THREE** weeks after the starting date of the class. Requests submitted after this time will not be approved.

Personals

CONVAIR

We wish to thank our Convair friends for their expressions of sympathy following the death of our daughter, Patricia, 12, on Dec. 8.

Mr. and Mrs. Michael Mulick, Dept. 780-3

General Dynamics News

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Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

R. M. Smith Given Added Duties

Robert M. Smith has been named manager of employe relations and employment in Convair division's industrial relations department.

M. V. Wisdom, industrial relations director, said Smith will be responsible for labor relations, in addition to his previously assigned duties as manager of professional placement and employment.

Smith, a 1951 graduate of Franklin and Marshall College with a degree in economics, has had 13 years experience in industrial relations. He was chief of professional placement and personnel at the Kearny Mesa plant from 1958 through 1963 and was a vice president and director of Barnes Chase Advertising Co. for 1½ years before returning to Convair last June as manager of professional placement.

Robert E. King, former manager of labor relations for Convair, resigned recently to become director of labor relations at NASA headquarters in Washington, D.C.

ROCKHOUNDS PLAN TRIP TO ARIZONA

CRA Rockhounds will view shots of Western ghost towns at tonight's (Jan. 12) meeting, 7:30 p.m. in the CRA Clubhouse auditorium, Kearny Mesa. Mrs. George Forbes will show and narrate the color slide program. Plans will be made for a field trip Jan. 29-30 to the Yuma, Ariz., test station.

GROUND CREWMEN ON 600 PRAISED

(Continued from Page 1)

the day crew and W. J. Jankowski supervised night crew work.

Mechanics were W. A. Brinkley, J. L. Martin, A. A. Duncan, E. C. Puterbaugh, and F. C. Martin. M. O. Sage was electrician and R. J. Moore handled electronics. All are from Dept. 071-0 at Lindbergh Field.

J. J. Kiely, D. D. Claxton, J. D. Powers and Bill Smolk of Dept. 031-0 took care of instrumentation and C. E. Shyler, R. T. Scott and L. W. Putney of Dept. 149-2 handled inspection.

Don Germeraad, pilot for the tests, said the ground crews "did a tremendous job" in preparing the planes. In addition to changing tires and brakes, numerous ballast load changes were required. Cameras were used along with various instrumentation equipment for measuring performance.

R. L. Runnalls, flight test group engineer, said ingenuity of the teams in supporting the tests with a minimum of equipment and in a field situation "was remarkable." They were practically "working out of a suitcase," he said, "and there was outstanding esprit de corps."

During December flight testing, temperatures at Edwards on some days rose from 29 degrees when the first shift started working to 90 degrees by mid-afternoon.

E. E. Whigham, senior flight test engineer, said the 240 and 340/440 tests marked the first time Convair crews had performed flight tests under stringent FAA turbine aircraft regulations, including single engine landings.

"The crews worked from before dawn until after dark," he said. "They did the job they were sent up for and they did it well."

Both the 240 and 340/440 versions of the famous Convair-Liner series of aircraft are being converted from reciprocating piston engines to Rolls-Royce Dart turboprop power plants for five airlines.

Convair Integrating Back-up to Agena

(Continued from Page 1)

project engineer with R. R. Martin as his assistant.

In the event the Agena is ready for the Gemini VIII launch, the ATDA will serve as a back-up system for later Gemini missions.

The ATDA, since it will have no propulsion system, will not have the Agena's extensive capabilities for changing its orbit and orbital plane. It will have a stabilizing system to keep it from tumbling.

Radar beacons and lights to aid in docking maneuvers are built into the docking adapter.

Gemini electrical system components, digital command system, orbital attitude and maneuvering electronics and re-entry control section will be used in the ATDA.

Dr. George E. Mueller, NASA associate administrator for manned space flight, said the ATDA is a modest contingency measure, not a change in the program. McDonnell Aircraft Corp. is prime ATDA contractor with Thompson-Ramo-Wooldridge providing guidance equations and reference trajectories.

Astronauts in the Gemini VIII spacecraft are to be boosted into space on a Titan 2 as the ATDA completes its first orbit and will attempt to rendezvous with the ATDA on their fourth orbit.

After initial docking maneuvers have been accomplished, Gemini VIII is to release itself from the ATDA and back off about 45 miles with retrograde thrust. The astronauts then will change the apogee and perigee of their orbit and reapproach the target vehicle with visual maneuvering for a second docking attempt.

One of the astronauts also is scheduled to move around outside the spacecraft while using a back-pack life support system designed at NASA's Manned Spacecraft Center in Houston.

Only One Day Left to Sign up For In-Plant College Classes

Tomorrow is the last day for Convair employes to sign up for spring semester San Diego City College courses offered at both Kearny Mesa and Lindbergh Field plants.

Registration will be from 3:30 to 5 p.m. in Room 2 of Bldg. 17 at Kearny Mesa.

Courses offered are introduction to computer systems, computer logic and circuitry, mathematics for electricity and electronics, calculus for electronics, effective supervision, introduction to technical writing, advanced technical writing and blueprint reading.

All are three hour courses held from 5 to 8 p.m. one day each week and will provide three units of college credit with the exception of the blueprint reading courses.

The Tuesday evening introduction to computer systems' course will cover the binary numbering system, boolean algebra, digital devices and digital and analog computers and is intended to provide basic background on computer systems for electronic technicians, engineers and programmers.

Computer logic and circuitry, to be given Thursdays, is designed for those in the electronic industry who need to add to their knowledge.

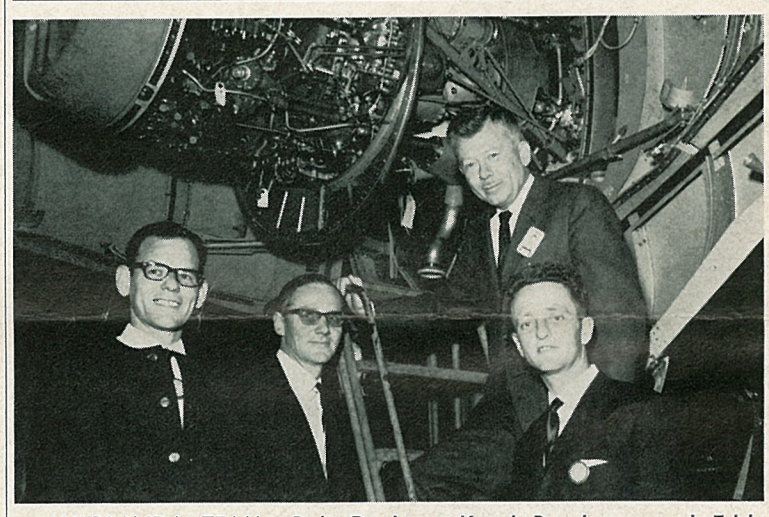
Mathematics for electricity and electronics will cover elements of algebra involving equations, formulas, exponents, graphs and powers of 10; use of logarithms in multiplication; division, powers and root.

The calculus for electronics course will cover fundamental concepts of calculus and basic operations of differential and integral calculus including trigonometric, logarithmic, exponential and hyperbolic functions. Both of the math courses will be given Thursday.

Effective supervision will be a course dealing with problems and solutions in dealing with individuals and groups and will include a brief history of the labor movement and typical structure of industrial firms. It will be given Wednesday evenings.

The introduction to technical writing course will place emphasis on government and industry approved style and format and will be held Monday evenings. The advanced technical writing classes will be held Wednesday evenings.

Blueprint reading courses are to be given at Lindbergh Field with one class to meet from 12:45 to 3:15 p.m. Tuesdays and Thursdays and another from 3:45 to 6:15 p.m. Tuesdays and Thursdays. College credit will not be given for these, which will be designed to develop the ability to read blueprints, interpret notes as required and translate information in title block.



AVIOLANDA TEAM—Bob Deckers, Karel Beerlage, and Eddy Waelput, engineers from Aviolanda-Woensdrecht, Holland, with R. K. Hall of Convair commercial customer requirements (on steps) are snapped in Convair Service Center during month Hollanders were in San Diego observing Convair 600 conversion.

Holland Aircraft Engineers Spend Month Studying 600

A team of three engineers from Aviolanda-Woensdrecht, Holland aircraft industry, left for home Dec. 23 to spend Christmas with families after a month at Convair absorbing all the information they could on Convair 600 conversion.

The three, Eddy Waelput, structural engineer; Karel Beerlage, systems/electrical engineer; and Bob Deckers, planning engineer, will guide Aviolanda crews during conversion of a Convair-Liner 340 to the turbojet version for Martin's Air Charter of Holland.

Modification to the Convair 640 version with Rolls-Royce Dart engines will begin in February. Martin's Air Charter was the first European airline to purchase a Convair 600 modification kit from Convair.

During their weeks at Convair the Aviolanda men worked closely with service engineering, service parts, engineering, and the Convair Service Center as they assembled technical data and observed Convair practices and procedures for accomplishing the conversion. Meanwhile, they maintained liaison with Aviolanda during the planning period.

Watch For Notice Of Mgt. Club Date

Convair Management Club members are alerted to watch for notice of a meeting to be held either Jan. 19 or Jan. 20.

Although plans were not firm by presstime, D. P. Wright, club program chairman, said that a meeting definitely will be held either Wednesday or Thursday night of next week. A knowledgeable speaker will discuss a current topic of wide national interest. Details of date and place will be mailed to members.

The dinner meeting is sponsored by research and engineering.

BUXTON TO TEACH ADV. PURCHASING

W. C. Buxton, chief of material operations at Convair, will instruct a course in Advanced Purchasing at San Diego City College during the coming spring semester, starting Feb. 3.

Classes will be held Thursday evenings, 6:30 to 9:30 p.m.

Buxton said that the course is designed especially for persons presently engaged in buying and those who have had a previous course in purchasing fundamentals.

Material will cover contract type, incentive arrangements, negotiation, subcontract management, pricing policy, price analysis, value analysis, task descriptions, standardization and economics for buyers.

Registration may be made through the college office, 234-8451.

Variable Sweep Wings: A report from General Dynamics

A major step forward in aircraft design:

This week, several pilots redesigned their airplanes in flight. Shortly after takeoff, each pilot moved a trombone-shaped slide in his cockpit and folded back the wings of his plane.

The ability to do this made the F-111's they were flying the first aircraft that can (1) operate from short landing fields, *and* (2) fly economically for long subsonic cruise ranges or ferry itself across an ocean, *and* (3) strike supersonically at treetop height *or* dash at two-and-a-half times the speed of sound at an altitude of 12 miles.

The key is its variable sweep wing. Today the first eight developmental F-111's, built by General Dynamics, are daily demonstrating the feasibility of a movable wing—a development that finally makes a truly multipurpose airplane practical.

The matter of flight envelope:

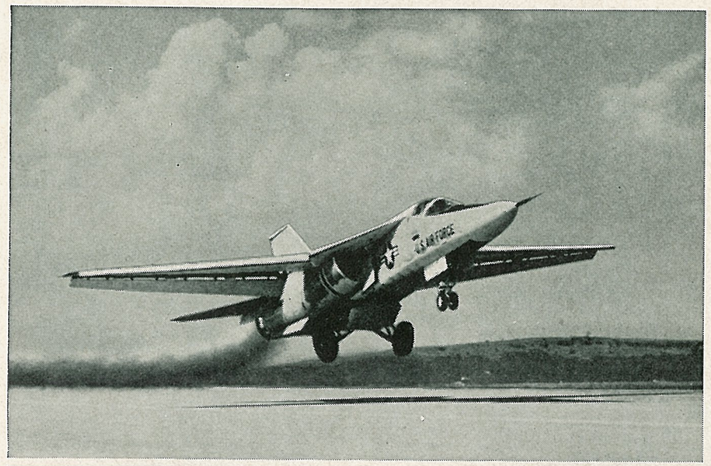
Every aircraft has a specific "envelope"—a set of limitations, or boundaries, of speed and altitude, within which it can operate effectively. The final design of a plane depends upon which of several possible purposes is most important.

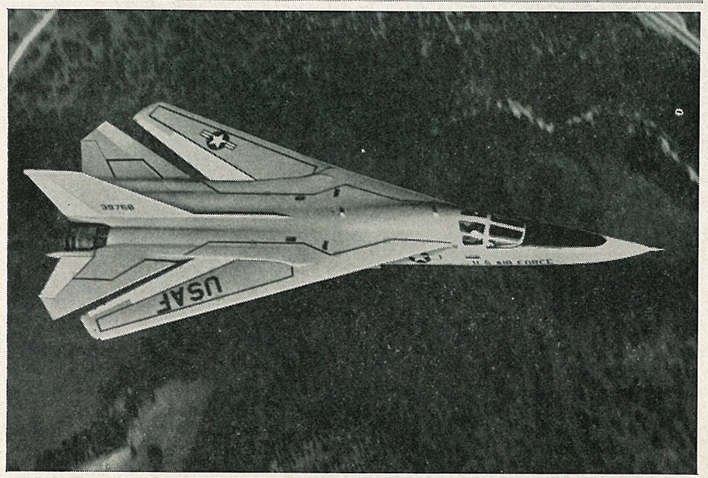
A long wing extended straight out is best for short takeoff and landing, long range and endurance, or high load-carrying characteristics. For the high lift demanded, a large amount of wing surface is needed.

But as speed increases, less lift is needed from the wings. In fact, at high speeds, large wings increase resistance from the air. Such an airplane can be pushed to supersonic speed by brute power, but not efficiently.

This resistance is commonly called drag, and one way to reduce it has been to sweep the wing back. For instance, the modern passenger jet, whose wings are partially swept back, can fly efficiently for long distances just below the speed of sound. But the swept wing provides less lift, and such aircraft need long runways, sometimes up to two miles long, and special braking devices.

Very high speeds—faster than sound—can best be reached with a very small wing, sometimes in a triangle or delta shape. But the still lower lift can require even longer runways, and additional braking devices such as drogue parachutes. The very small wing offers considerably less fuel efficiency for long-range, subsonic flight.





Top: The F-111 with its wings extended straight out for high lift at takeoff.
Bottom: Wings being swept back to allow F-111 to reach supersonic speeds.

Three aircraft in one:

A wing whose position can be changed by a pilot *in flight* gives a single airplane the special talents of all three types. With the wing fully extended, the aircraft has high lift for short takeoff or landing or high-load capacity. With the wings partially swept, efficient long-range subsonic flight becomes practical. Pulling the wings all the way back to their smallest exposed area provides supersonic dash, without having sacrificed either high lift or cruise economy.

Previous—and impractical—attempts to achieve variable wing geometry go all the way back to 1911. The chief problem: an undesirable relationship between center of gravity and center of lift as the wings moved would cause an airplane to nose up and down sharply—become longitudinally unstable.

How it operates:

Not until 1960 did the National Aeronautics and Space Administration conceive the answer to this instability—simultaneously sweeping both wings around separate pivot points which were moved out on the wing root rather than having a single pivot in the center of the fuselage. The concept has been refined and developed by General Dynamics through more than 22,000 hours of wind tunnel testing, and more than 25 million man-hours of design and development.

The F-111's variable wing can be moved in flight from its fully extended position (technically with 16° of sweep measured at the leading edge) to a full sweep of 72.5°, with the wings tucked back against (and much of them actually inside) the fuselage for a narrow delta shape. The position of the wings can be set and held at any position between these two extremes, with the pilot himself deciding what wing setting is best for maximum performance in a given set of circumstances. He can normally lever the wings from one extreme to the other in about twenty seconds.

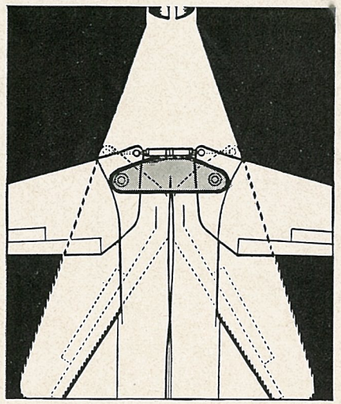
The precision of design is so exact and the wing so balanced that negligible elevator trim is needed to compensate for full sweep of the wing.

Heart of the system:

The heart of the F-111's variable sweep system is a 14-foot steel yoke across the fuselage (see drawing below).

The movable portions of each wing are fastened to the yoke by 8½-inch diameter high-strength steel pivot pins. Forward of the yoke hydraulically powered actuators, responding to the pilot's control selection, move the wings from one position to another.

For additional high lift at takeoff and landing, full span slats and flaps are incorporated into the wing. The wing itself is ingeniously tapered so that much of its area when fully extended is highly cambered—that is, with a relatively thick curve for greater lift—and thin at the area remaining exposed when wings are swept back for high-speed flight.



How the wing works. A 14-foot steel yoke, with its 8½-inch diameter pins, on which the wings pivot, is the heart of the variable sweep winged F-111. The yoke and pins support the whole plane in flight. A jackscrew just forward of the yoke actuates the wings during sweep.

The future for the sweep wing:

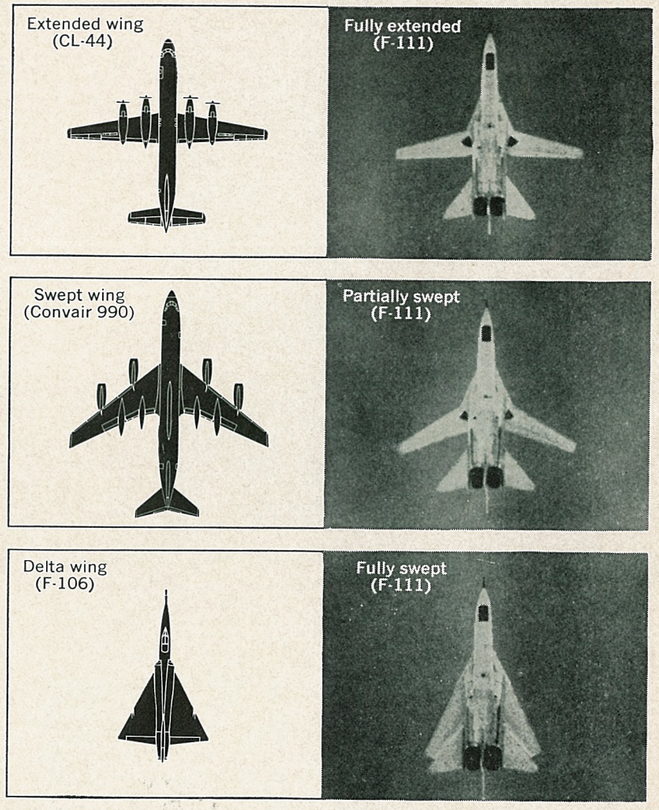
Since the Wright Brothers' first breakthrough in the art of manned flight, there have been relatively few major advances in the basic art of airplane building. One was the introduction of light aluminum structures, another the introduction of the turbine—better known as the jet—engine for propulsion.

The variable sweep wing represents a similar major step forward. For any category of aircraft—military, commercial or private—where the combination of very high-speed flight, long economic cruise and high lift for easy takeoff and landing is desired, the variable sweep wing sets the new standard. Even space ships may ultimately incorporate some form of variable geometric wing to make them more maneuverable within different atmospheres.

General Dynamics is a company of scientists, engineers and skilled workers whose interests cover every major field of technology, and who produce for defense and industry: aircraft; marine, space and missile systems; tactical support equipment; nuclear, electronic and communication systems; and machinery, minerals and gases.

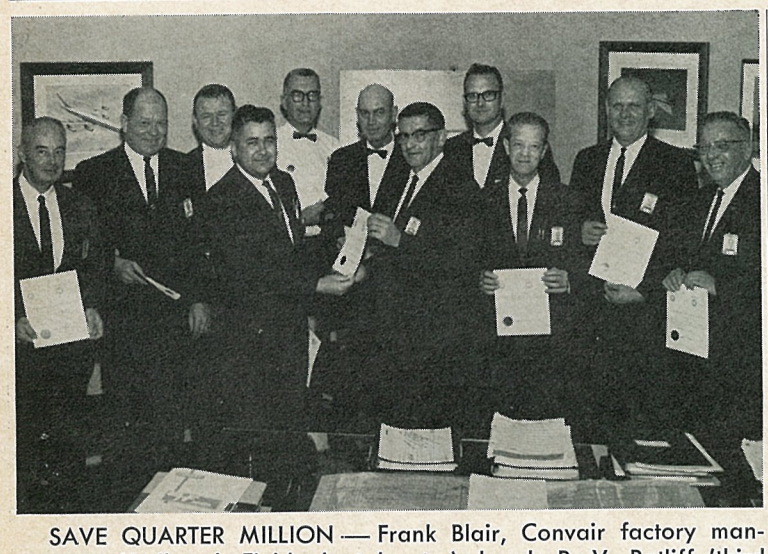
GENERAL DYNAMICS

How wing configuration determines flight envelope



Left, top to bottom: Drawings of planes flying today. Extended wing of transport provides relatively short takeoff and landing with heavy loads. Swept wing of passenger liner provides less lift, but allows the plane to fly efficiently just below the speed of sound. Small delta wing of military fighter reduces air resistance (drag) and allows the plane to fly at supersonic speeds.

Right, top to bottom: Photos of the F-111 show how the variable sweep wing gives it the advantages of the extended wing, swept wing and delta wing—all in one plane.



SAVE QUARTER MILLION — Frank Blair, Convair factory manager at Lindbergh Field plant (center), hands R. V. Ratliff (third from left) two Certificates of Commendation for proposals which will save $121,493. Other production men receiving recognition for cost-saving suggestions are (from left) J. S. Bryant, F. M. Baxter, J. F. Ames, A. C. Oehler, F. E. Reed, W. J. Durflinger, E. L. Wallin, L. W. Stamper, H. G. Rote.

Ten Production Supervisors Earn 'Well Done' For Cost Cuts

Ten production supervisors at Lindbergh Field plant have saved Convair division nearly a quarter of a million dollars by streamlining factory operations and methods through cost reduction and value control proposals approved during the final quarter of 1965. Combined savings totaled $235,813.

Frank Blair, Lindbergh Field plant factory manager, in presenting Certificates of Commendation late last month, lauded all for their "realistic approach to ferreting out ways and means of reducing costs on airframe programs."

"We are proud of you," Blair told the group. "This is the kind of thinking we need."

Singled out for their efforts were: R. V. Rattliff, assistant foreman in Dept. 016, electric bench; L. W. Stamper, assistant foreman, metalbond, plastics, and trim (Dept. 019); H. G. Rote, foreman of Convair 600 modification (Dept. 024); J. F. Ames, Dept. 024 assistant foreman; F. E. Reed and W. J. Durflinger, assistant foreman in machine shop (Dept. 015); F. M. Baxter, assistant foreman, processing (Dept. 002); E. L. Wallin, assistant foreman, C-141 empennage assembly (Dept. 041); J. S. Bryant and A. C. Oehler, assistant foremen in experimental (Dept. 031).

Ratliff and Stamper were credited with the lion's share of the savings with two proposals submitted by Ratliff amounting to $121,493 in savings and Stamper's value control proposal saving $70,317.

Spearheaded by Ratliff, electric bench streamlined departmental procedures and methods of fabrication, mockup, and installation of all electrical wiring on Convair 600s to save $112,562. His other proposal applied value engineering techniques to change the procedure of potting electrical connectors for F-102/F-106 kits.

Stamper initiated a value engineering project which resulted in the combination of buildup operations in fabrication of C-141 horizontal stabilizer leading edge sections, reducing recycle time, inspection, and eliminating rework of the contour shell tool.

Rote and Ames put into use a pneumatic punch machine for locating rivet pattern pilot holes in Convair 600 nacelle formers, eliminating hand layout.

Reed used value engineering techniques to change planning and method of making C-141 hinges, saving machining, inspection, and labor time. Durflinger's cost reduction proposal improved machine shop planning and machining methods.

Baxter was responsible for changing the type of cleaner used in processing department's soap tanks in which all metal parts are cleaned before processing of any kind. Now the tank life has been extended from one month to four.

Wallin's value improvement proposal eliminates hand trimming of C-141 longeron splice plates to fit stringers by reworking the router form. Bryant suggested using leading edge assemblies in surplus instead of fabricating new ones for rework on 990 spares wing tips.

Oehler found that an existing test fixture could be reworked for use during checkout of Little Joe II attitude control fins when faced with the necessity of either building a new check stand or shipping one from White Sands Missile Range.

Merk Honored For New Value Control Idea

J. E. Merk, assistant foreman of factory sub-assembly and mock-up Dept. 759 at Kearny Mesa, has been presented a certificate of commendation for a value control project that is expected to save Convair division $56,552 during its first year of operation.

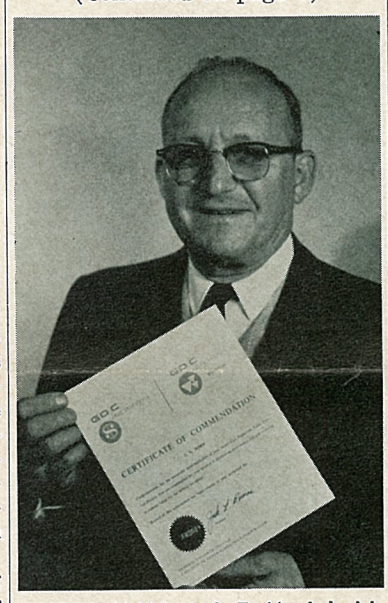
The certificate was the fourth presented to Merk for value control project ideas submitted by him last year that will save the division totally an estimated $76,570 during the first year of operation of each.

A Convair employe for 26 years, he has submitted seven approved value control project ideas since the program began with total first year company savings calculated at $118,840.

Under Merk's most recent value control project, a set of strip spot weld templates is being fabricated by his department to mark areas requiring spot welding on launch vehicle subassemblies.

George Webber and George Loudermilk of production engineering Dept. 400, who assisted Merk in implementing the project, said the spot weld patterns on the assemblies were previously laid out by hand and that the new procedure of using templates cuts the average time required for

(Continued on page 5)



IDEA MAN — J. E. Merk holds fourth certificate of commendation for value control projects he initiated last year. projects are expected to save Convair more than $75,000.

Employe Suggestions In '65 to Save Million

A $3,078 Employe Suggestion award check — one of the largest of recent months — has been presented to William J. Merkel, an operations performance control analyst in Dept. 760-1, for a suggestion that will save Convair an estimated $30,780 during the first year.

Merkel's award brought division savings to be achieved from 1965 Employe Suggestions over the $1 million mark for the year.

His suggestion for consolidation of much of the clean-up previously required for launch vehicles during both the Phase IV, and the later C and D (clean and damage) activity, is expected to cut 300 manhours from the number required for each vehicle. This will save about 9,000 manhours during the first year.

Checkout and acceptance, Dept. 763, now is using a series of check sheets to indicate what specific items in each "zone" of the vehicle require re-examination during the C and D inspection after composite tests have been completed and needed repairs and changes made.



MILLION DOLLAR MARK — Elwood Bryant, Convair vice president for operations, right, presents $3,078 Employe Suggestion award check to W. J. Merkel of Dept. 760-1. Merkel's suggestion will bring to more than $1 million savings to be achieved during the first year from Employe Suggestions submitted during 1965.

Certificates, Checks Awarded For Work Elimination Idea

Award certificates and checks for $1,290.65 each have been presented to a design draftsman and an engineering illustrator in Centaur Dept. 988-6 for an Employe Suggestion that will eliminate unnecessary duplication of work and reduce 8,550 pages of printed material related to the electronic "harness" for each vehicle.

T. J. Henry, the design draftsman, and J. M. Stabile, the engineering illustrator, received the checks from Grant Hansen, vice president-launch vehicle programs, in ceremonies in Hansen's office.

Ed Heller, manager of cost reduction and value control, and Andrew Kalitinsky, Centaur engineering director, were present.

Prior to implementation of the suggestion from Henry and Stabile with the AC-7 vehicle, information on all changes in the harness wiring "from plug to plug" was updated in both a data processing tabulation and engineering schematic reports beyond the point where wiring of the harness had been completed and inspected in the manufacturing area.

Under the new procedure, after "sell-off" of the harness from the manufacturing area, the automated wire data book is "retired" and all additional changes in wiring are documented only in the engineering schematic.

Heller said Convair will save an estimated $25,800 from the suggestion during the first year. In addition to the reduction in printed materials required, manhours will be saved in key punch and computer operations and in checking, design and release areas.

Stabile, who has five sons and three daughters, said part of his check will be used to assist his eldest son with college tuition costs after he enrolls next year at the University of San Diego.

Income Tax Lecture Series Is Continued

An income tax lecture, the second of four to be given Wednesday evenings this month, will be held from 4:45 to 6:45 p.m. today in Room 338 of Bldg. 5 at Lindbergh Field.

The course is being given by Gerald V. Baughman of the Jay Kay Tax Service and is sponsored by Convair Management Club. Registration fee is $1 for club members and $2 for nonmembers.

Current income tax laws, various types of income and itemized deductions will be covered. Each lecture is followed by a question and answer period.

Four 'Do Good Work' Winners Named for Month of November

C-141 empennage assembly Dept. 041 at Lindbergh Field and Dept. 576-18 (ABRES A) at the Western Test Range were winners in Convair division's "Do Good Work" program in November for the second consecutive month.

Other winners for the month were machine shop Dept. 731 at the Kearny Mesa plant and Dept. 979 (Complex 36-B) at the Eastern Test Range.

Dept. 041 had a quality index of 118, up from 111.4 in October, with a record of 1.66 average number of defects per 100 manhours for the month compared with 2.13 in October, 3.27 in September and 9.93 in August. A quality index of more than 100 indicates improvement.

Dept. 576-18 at WTR recorded its fourth win since the program began two years ago; has a quality index of 120.7 with 5.63 average defects per 100 inspection tasks for the month.

At the Kearny Mesa plant, Dept. 731 had a quality index of 116.2 with a .95 parts rejection percentage for the month. Runner-up departments were Centaur test operations Dept. 974 with a quality index of 114.1 and telemetry operations Dept. 780-4 with a quality index of 113.5.

Runner-up departments at Lindbergh Field were electric bench Dept. 016 with a quality index of 115 and metalbond fabrication and assembly Dept. 019 with a 114.1 quality index.

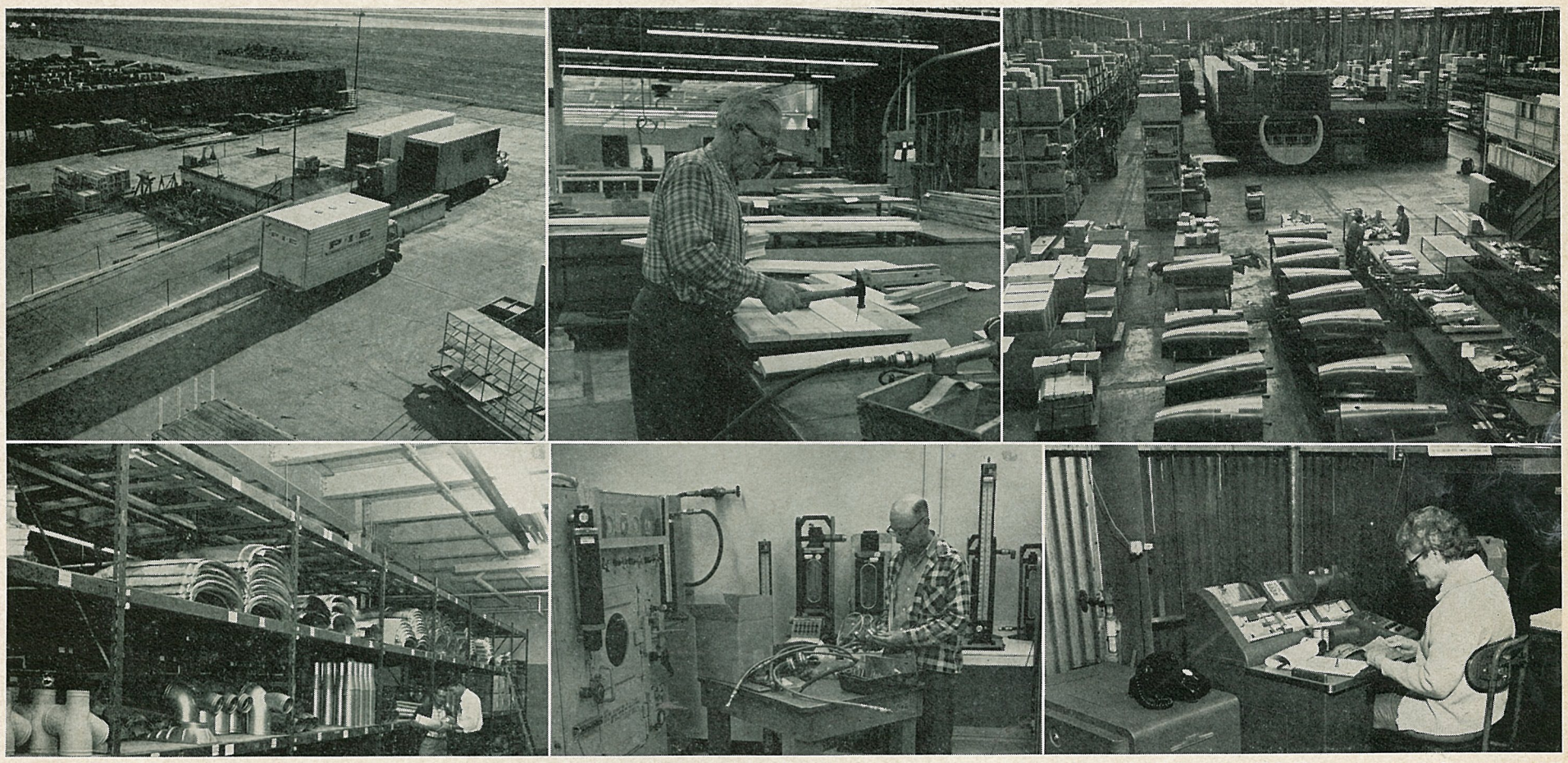
Dept. 979 at ETR had 4.69 average defects per 100 inspection tasks recorded for the month. Members of the department previously had received "Craftsmen of the Month" honors in April, 1965.



CAPE WINNERS — T. J. O'Malley, Convair manager of space launch operations at ETR, presents Craftsman award for October to Ott Meotti, assistant foreman, who accepted for winning Complex 13.



AWARD WINNERS — T. J. Henry, left, and J. M. Stabile receive certificates from Grant Hansen, right, vice president-launch vehicle programs, for Employe Suggestion that will save Convair more than $25,000 during a year as Andrew Kalitinsky, center, and Ed Heller look on. Henry and Stabile each received a check for $1,290.65.



ALL MOVED IN — Material and stores are now relocated in Bldg. 4 at Convair's Lindbergh Field plant following vacating of Rose Canyon. Top left shows receiving and shipping dock adjacent to airfield. Top center: L. J. Ashcraft, packer and crater, nails crate in shipping. Top right: Overall photo of spares stores where parts are kept for Convair aircraft customers all over world. Lower left: Wally Killeaney and John Munson look over neatly-stacked Convair 600 kit stores area. Lower center: L. B. Muzzy, hydraulic inspector, checks equipment as it moves into receiving inspection. Lower right: Letha Calloway, keypunch operator, receives order from service parts via transceiver machine. Relocation of material from Rose Canyon and Plant 19 took just 40 working days — and 700 semi trips.

NASA-Owned Vacuum Chamber Altered to Improve Capability

One of two NASA-owned vacuum chambers, and its pumping system, located near Gate 8 at Convair's Kearny Mesa plant, is getting a new look and vastly improved capabilities.

One end of the 12½ by 21-foot Spacecraft Test Facility vacuum chamber has been cut away and replaced by a new ½-inch-thick stainless steel dome-type door equipped with three 10-inch-diameter and inch-thick quartz windows while the chamber itself has been lengthened three feet.

Liquid nitrogen will be circulated through a new stainless steel "cold wall" inside the chamber.

Two new 95,000 liter-per-second oil diffusion pumps will replace three old-style mercury diffusion pumps that have served as second-stage pumps.

Modifications will increase altitude simulation capabilities of the chamber from 400,000 ft., or 76 miles, to 1,100,000 ft. or 209 miles.

The 12½-ft. door gives full-diameter entry to the chamber where previously a 21-inch porthole was the only opening.

Modification work is being performed under direction of plant engineering with A. E. Kiner as project engineer and Bill Connelly, field engineer.

The vacuum chambers are operated by personnel from engineering test laboratory, Dept. 578-5, under direction of P. T. Gardner with assistance from engineering support group, Dept. 756.

Bill Michael, lab coordinator for spacecraft test facilities, said circulation of liquid nitrogen at –320 degrees Fahrenheit through the cold wall as the chamber is "pumped down" to desired level and use of carbon arc lamps to simulate solar heat radiation will make it possible to expose a satellite or other piece of space hardware in the chamber to simulated orbital conditions.

When the arc lights are turned on or off to simulate orbital pass above the light or dark side of the earth, thermocouples attached to the hardware components will indicate whether they are maintaining design temperatures for proper performance.

The two chambers previously have been used in selecting "package" locations and color for the Aerospace Research Satellite and for studies involving numerous components for Atlas, SLV, Centaur and other General Dynamics products.

Michael said the two medium-sized chambers were brought to Kearny Mesa from Livermore Radiation Laboratory in 1959. The second chamber, which has a less effective aluminum "cold wall," also was modified several years ago with a door being placed on one end.

Michael said updating of the chamber will make possible greater reliability for future space project studies by Convair and will improve the Company's capabilities in thermal vacuum studies. Connelly said modification work is scheduled for completion in February.

Merk Is Honored For New VC Idea

(Continued from page 4)

such layout from an hour to five minutes each.

Webber said there are more than 300 launch vehicle subassemblies that require spot welding and that 90 per cent are repeats of previous orders. He said use of templates, in addition to saving manhours, should eliminate inspection rejects.

Merk's other three value engineering projects implemented last year resulted in reduced production costs for a Centaur transfer lox unit, an SLV pressurization control unit and SLV work stands.

Office Surplus Sale Scheduled

A specially-scheduled bargain day is in store for all General Dynamics people on Jan. 22 when surplus office equipment and other materials at Rose Canyon will be put on the market at big mark-downs for employes.

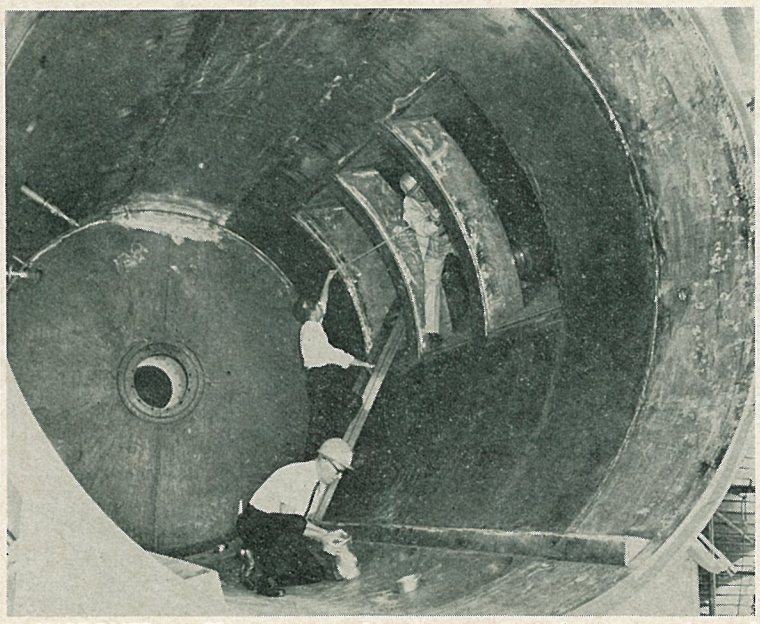
The special sale for employes only will be held at the Rose Canyon material building, now being vacated, at the north end of the Morena Blvd. extension, north of Balboa St. Sales hours will be from 8 a.m. until 2 p.m.

The Jan. 22 sales day will take the place of the Jan. 29 employes' store day formerly scheduled at Lindbergh Field salvage yard, explained R. H. Lange, material sales supervisor.

Items on sale will consist primarily of desks, chairs, metal and wood file cabinets, work benches, fluorescent lights, stools, racks, shelving and other miscellaneous material. All items must be removed from the premises on the day of purchase.

The material is being put on sale at the Rose Canyon site to eliminate need of moving it to another location, Lange said.

Regular employe sales days at Lindbergh Field salvage yard by Gate 5 will be this Saturday (Jan. 15) and on Feb. 12. Hours are from 8 a.m. until noon.



IMPROVED — Chevron pumping passageway for evacuation of air or gases from NASA-owned Spacecraft Test Facility vacuum chamber is undergoing modification at Convair, Kearny Mesa. Checking it are Lou Ayres, project manager for Paul Hardeman Co., top right, and Bill Michael, Convair lab coordinator, on ladder, as Bill Connelly, Convair field engineer, adjusts vibration fixture mounting pad.

Consolidation Creates Material, Stores Depot

One of the biggest moves ever made at Convair was completed last week with the vacating of Rose Canyon warehouse and relocation of all material and stores in Bldg. 4 at Lindbergh Field plant.

The large Lindbergh Field building has been converted into a central depot for Convair stores and traffic (Dept. 833), raw material stores (Dept. 836), and warehousing and shipping (Dept. 839), merging operations for both Kearny Mesa and Lindbergh Field plants.

Last functions relocated in the series of moves which took just 40 working days were material receiving and material inspection for Lindbergh Field programs.

Rose Canyon warehouse has been occupied by Convair since it was built in early 1957. Part of the building (150,000 sq. ft.) and outside area has been subleased to Solar division of International Harvester Co. as a manufacturing facility for gas turbine engines. The remainder, the west portion, is still available for occupancy.

"Consolidation of shipping and traffic departments of Kearny Mesa and Lindbergh Field plants in one central location will result in considerable savings in manpower and overall operating costs," said J. N. McPheeters, chief of stores and traffic.

"Also, since we are now located adjacent to service parts, which remains in the south end of Bldg. 4 mezzanine, we can expedite the flow of spare parts to our customers, a most important part of our business."

Transfer of materials, spares, and stock from Rose Canyon and AF Plant 19 was made in 700 semi-truckloads, all by company transportation. As the vast quantity of spares was brought into Bldg. 4, items were placed on shelves, then tagged with exact location, and the information transferred to IBM cards in a system evolved by R. H. Johnson, assistant foreman of spares and raw stores. Thus, every item could be located immediately, even during the hectic days of moving upheaval. It took some 40,000 IBM cards to keep track of all the spares as they were moved to their new stock area.

Plant engineering had to work day and night to keep ahead of the movers, taking down racks as they were emptied at Rose Canyon and reassembling them at Bldg. 4 in time for stock to be replaced. Workmen put up 1,400 on Bldg. 4 mezzanine alone! Seven racks were clamped together at a time, loaded onto trucks by hysters, and hoisted by crane.

Administrative offices of traffic and shipping, warehousing are now located in the Bldg. 4 area formerly occupied by procedures trainers with entrance off the main north-south aisle at D-10.

Now in their new location are McPheeters, ext. 438; G. E. Garrison, general foreman of stores, ext. 1423; J. C. Ruzich, traffic supervisor, ext. 776; F. R. Field, general foreman traffic and shipping, ext. 1236.

Also in the same area are offices of travel reservations, ext. 1426, and Ed Johnson, AF transportation officer, ext. 751.

Kit staging, receiving, receiving inspection, and the engineering process lab are located in the rest of the southwest area. A new receiving and shipping dock has been built on the west side of the building in the new outside spare parts and steel yard.

Customer service training classrooms and the military conference room remain in the far southwest corner of Bldg. 4.

Shipping occupies the southeast area on the ground floor between D and E from Cols. 1 to 15 with entrance from the south end of the building. Convair 600 kit stockroom, first cut and tool stores take up the rest of the east side to the "Hollywood and Vine" east-west through aisle.

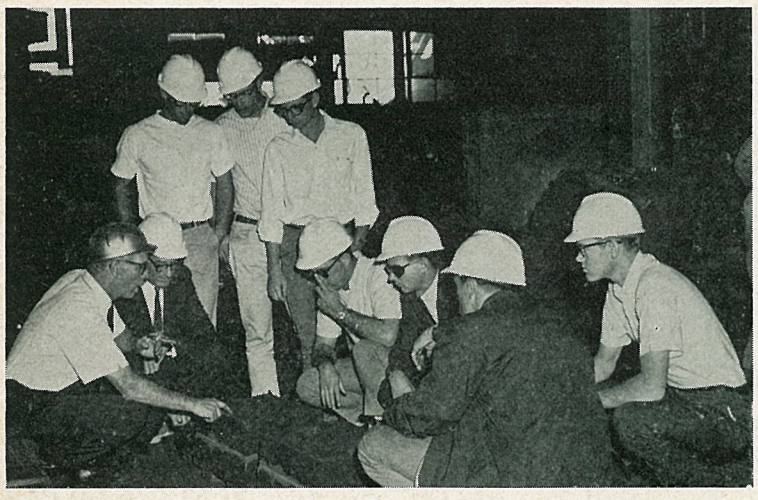
Raw stores are located along the northeast side of the building and spares stores along the northwest to Col. 53. Present plans call for extension of spares to the far north end.

Spares also occupy the entire mezzanine with the exception of the service parts area, under John Doig, manager of service parts-aircraft programs. The spares office for receiving orders by direct wire tie-in with service parts is at the north end of the mezz.

Kearny Mesa receiving remains in Bldg. 5 at that plant. Also at Kearny Mesa is a spares stockroom for storing outside purchased items used in missile programs.

Receiving at Plant 19 is still just inside Gate 23. Raw material and commercial stores are in Bldg. 1, and disposition and spares to support research and development missile projects and launch operations at Vandenberg AFB and Cape Kennedy are in Bldg. 3.

When telephoning, never mind the weather. Get to the point. Telephone time costs money.



ON-THE-SPOT LEARNING — Convair's Don Weisinger, kneeling second from left, and San Diego State College students in engineering course he instructs, hear Phil Grimard (far left), National Steel & Shipbuilding Co. foundry superintendent, explain manufacturing processes used at local plant. Students are W. E. Gibbs, J. A. Petzold, L. W. Gran, R. E. Bream, H. J. Piorek, W. G. Halvorsen, J. L. Hayward.

SD State Students Learning Mfg. Processes 'at the Source'

San Diego State College students in the undergraduate engineering course taught by M. D. Weisinger, Convair research group engineer, are learning practical application of manufacturing processes right at the source.

Weisinger supplements lectures with weekly field trips to large companies in the area to allow the students in the class a first-hand look at various processes and materials used within industry. Explanations and demonstrations are arranged by the companies.

The group so far has visited General Atomic's Magnaform plant on Harbor Drive, Convair's Lindbergh Field plant, Rohr Aircraft, Solar, Ryan Aeronautical Co., NAS Overhaul and Repair Station, North Island. They have trips scheduled to Navy Electronics Laboratory and Narmco before the end of the semester.

The course (Engineering 106-Manufacturing Processes) is required for upper level majors in design engineering to familiarize them with the processes and materials of manufacture.

Weisinger was called upon to instruct the course when the formerly-scheduled professor resigned his post at the beginning of the semester.

Family Heirloom

Early Day Navigational Aid Forerunner of Slide Rule

Study of early navigational aids has become an avocation for Russell Tynan, draftsman in Dept. 523-4 at Convair's Kearny Mesa plant.

The hobby is a result of a hand-tooled scale, believed to have been a forerunner of the slide rule, and a 15th century device for telling time, both in his wife's family for more than 200 years.

The teakwood rule is inscribed with the name John Sherman and dated 1758. It was passed from one generation of the Sherman family to another.

"My wife used it for a ruler in school work as a child," Tynan reported: "It's amazing it wasn't thrown out, or used as a paint stick."

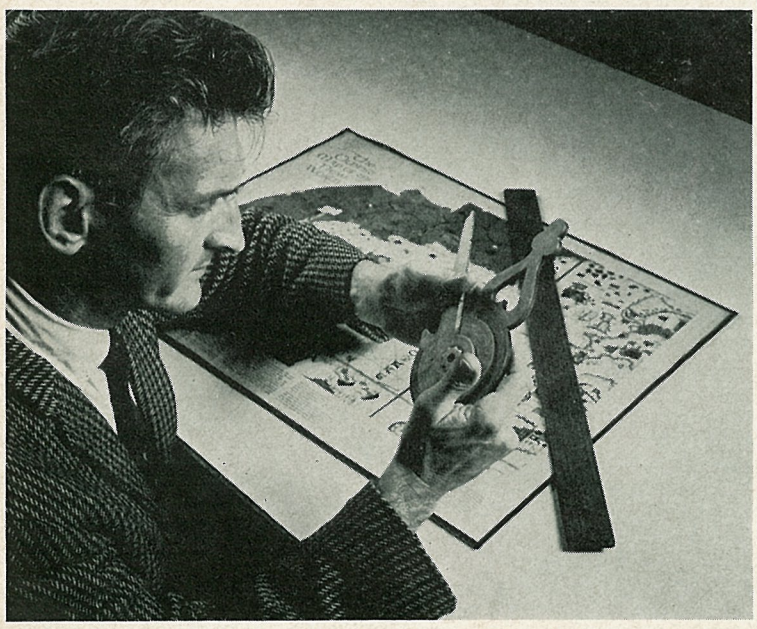
Tynan believes the rule reflects the first application of logarithmic scale to a two-foot rule and the first use of new navigational techniques by the English. Incorporated into the rule are two vernier scales for accurate conversion of data from its other scales.

"The Spanish, Portuguese and French sailors seem to have relied on directions of prevailing winds in navigating and did not adopt such devices until after the English had used them for about a century," Tynan said.

Mrs. Tynan's ancestors settled in New England in 1638 and there is no evidence that they were seafaring men. Until the rule came into Tynan's possession the family had assumed it was a carpenter's tool.

The time-telling device, also made of teak, was designed for use at night. Oriented toward the North Star, the navigator aimed the pointer at the handle of the Big Dipper and could establish a rough idea of local time.

Also in Tynan's possession is a reproduction of a map painted by Juan de la Cosa who sailed with Columbus on his second voyage to the New World, 1493-1496. Cosa was a master chart maker and navigator aboard the Nina.



NAVIGATION AIDS — Russell Tynan, Convair draftsman, examines device used by 15th century navigators in determining time at night. Also shown are a navigational scale that has been in Tynan's wife's family for 200 years, and a replica of a map drawn by navigator who sailed with Columbus.

S-C Club Will Hear 'Business Picture'

"San Diego's Business Picture" will be described for members of the Stromberg-Carlson Management Club attending the Jan. 20 meeting at the University Club, 1333 Seventh Ave.

John Harter, manager of SD Chamber of Commerce's industrial department, will talk on the city's business condition as speaker of the evening. Social hour starts at 5:30 p.m., followed by 6:30 dinner. Program is timed for 7:35.

Tickets may be purchased now from members of the Management Club booster organization at both S-C plants.

List Deductions For 1965 Taxes

Convair employes may claim cost of dependents' insurance as a medical deduction on their 1965 federal income tax returns.

Total deductible for the entire year will be $153.48 for hourly employes at Kearny Mesa, $143.48 for hourly employes at Lindbergh Field, $154.40 for salaried employes at Kearny Mesa, and $141.44 for salaried employes at Lindbergh Field.

The dependents' insurance premium paid by hourly employes at Kearny Mesa was $2.97 for each of 40 pay periods through Oct. 10, and $2.98 for the remaining 12 pay periods. Hourly employes at Lindbergh Field paid $2.72 for 40 pay periods and $2.89 for 12 pay periods.

Salaried employes at Kearny Mesa had 26 bi-weekly pay periods with $5.94 premiums, and salaried employes at Lindbergh Field had 26 bi-weekly pay periods with $5.44 premiums.

The total amount deducted from the employe's salary for California Disability Insurance should be shown as a tax under the "taxes" section of the federal income tax form. Prior to June 20 state disability insurance was 1% of the first $5,100 of earnings. After June 20, it was increased to 1.1% on a maximum of $7,400.

$24 Package Trip To Vegas Arranged Feb. 4-6 Weekend

Fun-lovers will have a chance to enliven the post-holiday stretch with a trip to Las Vegas, Feb. 4-6.

CRA has arranged a $24 package for round-trip bus transportation and two nights at the Stardust Hotel. Price is for double-room occupancy.

Six Greyhound buses, each holding 48, have been chartered. They will leave CRA Clubhouse at Kearny Mesa at 5 p.m. Friday evening (Feb. 4). Return from Las Vegas is 1 p.m. Sunday.

Travelers have a choice of going straight through non-stop or taking a dinner break at San Bernardino.

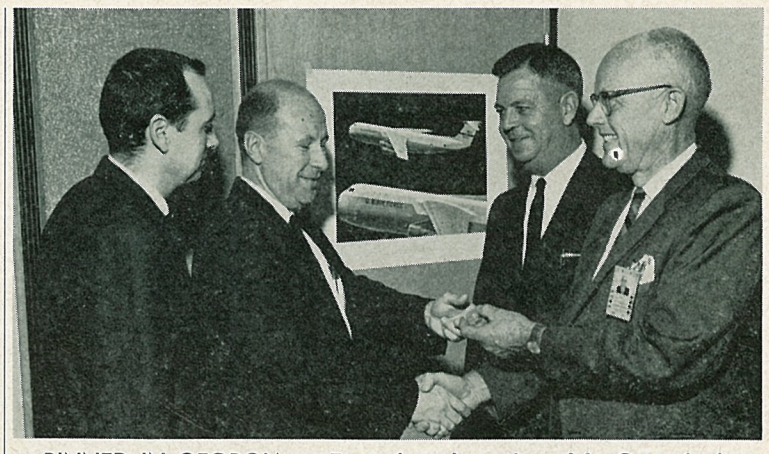
Persons may form their own groups and travel in the same buses if they indicate plans at the time of sign-up. Reservations are being taken through ext. 1111, Kearny Mesa. Payment must be made by Feb. 1 at Kearny Mesa Clubhouse, Lindbergh Field employe services in Bldg. 16, or Stromberg-Carlson employe services, Hancock St.

Aaron Wolgin Is New Camera Club Head

Aaron Wolgin (Dept. 592-0) heads the CRA Camera Club as new president following elections last month.

Ken Rinker (Convair retiree) is vice president and Al Oehler (Dept. 031-0), secretary-treasurer.

Meetings are held the first and third Sundays of each month, 7:30 p.m., in the Photo Arts Bldg., Balboa Park. Next will be this Sunday (Jan. 16) with a slide showing of the Rose Parade.



PINNED IN GEORGIA — Even though stationed in Georgia (one of a number of Convair engineers on loan to Lockheed-Georgia for C-5A work), George McHenry's 15-year pin came through promptly. He is shown receiving it from Don Hobart, right, to whom he normally reports. At left is Don Scarborough, Lockheed supervisor, and center is S. H. Imdieke, Convair.

Kearny Bus Service Hearing Scheduled

A request from the San Diego Transit System for authorization to discontinue bus service from the downtown Plaza to Convair's Kearny Mesa plant is to be considered by the California Public Utilities Commission in hearings beginning next Wednesday, Jan. 19, in the State Building in San Diego.

"G" route buses have been leaving the Plaza at 6:23 and 7:15 a.m. to arrive at Kearny Mesa at 6:49 and 7:42 a.m. daily and departing from the plant at 4:05 and 5:08 p.m. for return to the Plaza at 4:30 and 5:22 p.m., respectively.

Transit system representatives said surveys indicate the morning buses have been carrying an average of 12 passengers with the afternoon trips carrying an average of 14 and that the company has had an annual revenue loss of $5,100 from providing the service.

Wives Club to See Movie on Hawaii

Reservations close next Monday (Jan. 17) for Convair Wives Club's monthly luncheon next Wednesday (Jan. 19) in the Hunt Room of the Red Coat Inn, 5933 University.

James Abell of the La Jolla Travel Bureau and Harry Grogan of United Airlines will outline trips to Hawaii and show a film on the Islands. Social hour begins at 11 a.m. with luncheon at noon. Price is $2.10.

Hostesses are Vera Whitbey and Nadia McIntyre.

Lou Nordeck, 273-1140, and Sue Cavanagh, 279-1633, will accept reservations until 5 p.m. of the cut-off date.

Other club activity for the month is the open potluck Jan. 26 at the CRA Clubhouse. For information call Mary Gaus, 273-5198, or Frances Brooks, 469-8793.

Flight Control Five Lead Shop Hoop Loop

Standings after the first three weeks of play in Convair's shop basketball league saw Flight Control in the lead with three wins, no losses.

Three teams were tangled in runner-up and third spots to make it a wide-open race before end of the first round. IBJOB, GASP, and Comets each had won two, lost one; and Commandos, Underbrush, Dragons stood with one-win, two-loss standings. Team 595 was dragging with no wins, three losses.

Coineers to Name New 1966 Officers

CRA Coineers will nominate officers for the 1966 club year next Wednesday (Jan. 19), 7:30 p.m., Convair cafeteria, Pacific Hwy.

Awards will go to the best displays of silver coins. Two U. S. $5 gold pieces and a U. S. 1950-D nickel in BU condition will be given in the drawing and a U. S. 1961 proof set as door prize. Also, all attending will get a give-away coin in BU condition.

Mountaineer Course To Be Offered Jan. 25

General Dynamics people interested in mountain climbing will have a chance to learn the basics from professionals in a mountaineering course starting Jan. 25 in Balboa Park Conference Bldg.

The 7-week series of lectures and weekend field trips is cosponsored by San Diego Chapter of the Sierra Club and the City Park and Recreation Dept. Chairman, R. C. Kemp of Convair Dept. 227-0, can be reached at ext. 429, Lindbergh Field plant.

Registration will be taken at the first two sessions, 7:30-9:30 p.m. A $2 enrollment fee is charged for material and film rental. Age limit is 16 and over.

The course will be supplemented with a demonstration of mountaineering equipment Jan. 30, noon to 4:30 p.m., in Balboa Park's Recital Hall.

Helen Maddox New Toastmistress Prexy

Helen Maddox, an accounting technician in Dept. 193-1 at Convair has been installed as president of Serra Mesa Toastmistress Club.

A 12-year Convair employe, she is a charter member and served as president in 1963.

Other new officers are Alma Conger, vice president; Barbara Mansfield, secretary, and Joanne Miller, treasurer.

Beth Underkofler, contract administrator with the USAF plant representative's office at Convair, is retiring president and will represent the club at meetings of Council 7, International Toastmistress Clubs.

The club meets at 7:30 p.m. on the first and third Mondays of each month in Room C at CRA Clubhouse. Vistors are welcome.

Ballroom Dancing Classes to Start

A new series of ballroom dance classes for beginners and intermediates starts next Monday (Jan. 17) under CRA auspices.

Classes will be held in the CRA Clubhouse auditorium, Kearny Mesa, every Monday evening for 12 weeks. Beginners will dance from 7 to 8:30 p.m., and intermediates, from 8:45 to 10.

Cost of either of the complete 12-lesson courses is $18 per couple. Students will learn the fox trot, waltz, swing, rumba, tango, cha-cha, and samba.

For further information call Royce Riggan (Dept. 511-1), ext. 459 at Lindbergh Field plant.

Jim Miller Unbeaten In Chess Tourney

Jim Miller of Dept. 780 won the recent seven-week 1965 plant championship chess tournament which ended last month, undefeated in six games.

Jack Horning of Dept. 572 took second with five wins and one loss and Norm Lonsdale of Dept. 170 was third with three wins, three losses.

Regular Chess Club play is scheduled at 7:30 p.m. each Wednesday in CRA Clubhouse.

Dennis Sealey Awarded Sportsmanship Trophy

Eighty-seven General Dynamics employes and family members competed in 12 events in the CRA and Management Club-sponsored fall tennis tournament held over three weekends last month.

Dennis Sealey of Dept. 587-1 was selected unanimously to receive the special Sportsmanship Award trophy after play had been completed on courts at CRA, Mesa College, Morley Field, General Atomic and Mission Valley.

In the A leg of an 18-man draw in advanced singles play, Jack Bowers, Convair general manager, defeated Bob Herold 6-2, 4-6, 6-2, then lost to Jack Douglas of General Atomic who in turn lost to Tad Yamaguchi of General Atomic 3-6, 6-2, 6-2 in the finals.

George Huff defeated John Bennett 6-0, 6-4 after a tough 6-2, 9-7 match with Ray Hardy in intermediate singles.

Novice singles winner Rick Schultz defeated his father, Dutch Schultz, 6-2, 6-2, after the senior Schultz had won a marathon 4-6, 9-7, 6-2 with Lou Rossi.

Stan Griffin and Sealey beat Herold and E. Rothe 23 to 18 in an eight-game round robin in the advanced men's doubles event.

Hardy and Ron Madonia defeated Don McClarren and Huff 3-6, 6-4, 6-3 in intermediate doubles.

David Curtis and Carlos Velasquez of General Atomic edged Dave Harris and Bob Bacchi of Convair 15 to 14 in a six-team round robin novice doubles match.

Ruth Bennett shaded 10-year-old Vicki Jensen 24 to 23 in the round robin intermediate ladies singles. Diana Story defeated Janet Fountain 18 to 16 in the ladies novice singles round robin.

In the tough advanced mixed doubles round robin, Ann Germann and Jack Douglas of General Atomic defeated Sheila Boehm and Yamaguchi of General Atomic 30 to 25.

Hardy and Flora Cannau edged John Rogers and Vicki Jensen, 21 to 19, in the intermediate mixed doubles round robin event.

Harris teamed up with Diana Story to win the novice mixed doubles round robin 21 to 18. In a runner-up playoff, Rick Schultz and Frances Cannau defeated Dennis and Judy Hanrahan.

John and Flora Cannau outscored Dennis and Hilda Sealey, 21 to 19, in an eight-couple round robin man-and-wife event.

All participants' names were put into a hat for a turkey drawing. Bowers, Barry Farwell and Rick Schultz won. Bowers donated his to the First Presbyterian Church of Chula Vista for delivery to a needy family.

The next CRA-Management Club-General Atomic tournament is set for March 5 and 6, 12 and 13 and 19-20. For information, call Hardy at Kearny Mesa, ext. 1692.

CRA Calendar

(For information on CRA activities call CRA Headquarters, Kearny Mesa, ext. 1111. Deadline for copy for the next issue of GD/NEWS is noon, Jan. 19. Call ext. 3322, Kearny Mesa, or ext. 1071, Lindbergh Field.)

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ADVENTURERS — Meeting Jan. 19, 7:30 p.m., CRA Clubhouse.

BADMINTON — Play Mondays, 7-10 p.m., Federal Bldg., Balboa Park.

BALLROOM DANCING—New beginning and intermediate classes start Jan. 17, CRA Clubhouse. Call Royce Riggan, ext. 459, Lindbergh Field.

BASKETBALL — Shop league play Wednesday evenings and Saturday mornings, Muni Gym, Balboa Park.

BICYCLE CLUB — Meeting Jan. 24, 7:30 p.m., CRA Clubhouse.

BRIDGE — Play every Friday evening, 7:30 p.m., CRA Clubhouse. Next monthly Master Point night Feb. 11.

CAMERA CLUB — Meetings first and third Sundays, 7:30 p.m., Photo Arts Bldg., Balboa Park.

CERAMICS—Instruction Tues., Wed., Thurs. evenings, 7:30-10:30 p.m.; Wed. morning, 10 a.m.-1 p.m., CRA Clubhouse.

CHESS — Play each Wednesday, 7:30 p.m., CRA Clubhouse.

COINEERS — Meeting Jan. 19, 7:30 p.m., Convair cafeteria, Pacific Hwy.

DELTA DIVERS — Meeting tonight (Jan. 12), 7:30 p.m., CRA Clubhouse.

FENCING — Workouts and instruction Fridays, 7:30-10:30 p.m., YWCA, 10th & C Sts.

FISHING — Meeting Jan. 19, Gillespie Field Clubhouse. Potluck at 6:30 p.m., business session at 7:30.

GOLF — Sign by Jan. 17 for Jan. 22-23 CRA tourney, Cottonwood course. Call ext. 1111, Kearny Mesa.

GUN CLUB — ATA registered trapshoot Jan. 23, Gillespie Field Range.

ICE SKATING — GD skate night Thursdays, 6:15-7:45 p.m., Mission Valley Ice Arena. Trip to L. A. Blades vs. Vancouver hockey game Jan. 29. Call ext. 2751, KM.

JUNIOR RIFLEERS — Shoot 8 a.m., Jan. 15, CRA Gun Club Range. Meeting Jan. 19, 7:30 p.m., CRA Clubhouse.

JUNIOR SCIENCE — Meeting Jan. 21, CRA Clubhouse.

PISTOL CLUB — Club shoot 9:15 a.m., Jan. 23, SD Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB — Meeting Jan. 20, 7:30 p.m., club headquarters on Harbor Drive.

RIDING CLUB — Meeting tonight (Jan. 12), 7:30 p.m., CRA Clubhouse. All-day fun show Jan. 16.

ROCKHOUNDS—Meeting Jan. 12, 7:30 p.m., CRA Clubhouse. Lapidary workshops at Kearny Mesa and Gillespie Field open on regular schedule. Field trip to Yuma, Jan. 29-30.

ROLLER SKATING — Free skate night Jan. 17, Skateland, Front & G Sts. Tickets at employe services.

SCULPTURE — Workshop sessions Mondays, 7:30-10:30 p.m., CRA Clubhouse.

SKI CLUB — Weekend bus trip to Mammoth Mt. Jan. 14-16. Call Joe Harris, 284-0278.

SPORTS CAR CLUB — Meeting tonight (Jan. 12), 7:30 p.m., Convair executive dining room, Pacific Hwy.

TOASTMISTRESSES — Serra Mesa Toastmistresses meet first and third Mondays, 7:30 p.m., CRA Clubhouse.

WIVES CLUB—Monthly luncheon Jan. 19 at Red Coat Inn. Potluck 10:30 a.m., Jan. 26, CRA Clubhouse.

Skaters Plan Trip To Hockey Game

CRA Ice Skating Club is sponsoring a trip to Los Angeles to see the L. A. Blades play Vancouver in a Western Hockey League game on Saturday, Jan. 29.

Regular $3.50 loge seats will be available to GD people for $3, through club subsidy.

Deadline for reservations is Friday, Jan. 21. Sign-ups may be made through Bud Davies, CRA Ice Skating commissioner, at ext. 2751, Kearny Mesa.

No group transportation is planned, however, those needing a ride should advise Davies who will try to arrange car pools.

PECANS ON SALE AT CLUBHOUSE

Pecans from CRA's Pecan Park, east of El Cajon, now are on sale at the CRA Clubhouse, Kearny Mesa. They are priced at 50 cents for a 2-lb. bag.

Convair Folk Help Needy

Convair division employes last month helped hundreds of less fortunate families throughout San Diego County to have a happy Christmas.

A truck load of food, clothing and gifts collected by personnel in quality assurance Depts. 140, 141 and 146 was delivered to the Pala Indians who live in semi-indigency on a reservation in Northern San Diego County.

In addition to the truck load of goods contributed by employes and donated by merchants, $50 of $53.01 in coins removed from the reflection pool in Bldg. 2 at Kearny Mesa was given to the Indians. The truck used to deliver the supplies was loaded by the Army Reserve.

Added to $2,500 previously given by Con-Trib-Club, checks totaling $129 from Convair departments were turned over to the Salvation Army to assist needy families.

The additional funds were donations of $11 from security Dept. 132-2, $45 from SLV contracts Dept. 643-0, $12.10 from Centaur electronics systems reliability assurance Dept. 958-6, $44 from SLV test evaluation Dept. 574-3 and Centaur test evaluation Dept. 951-4 and $14 from the CRA Organ Club.

Employe services representatives said the added donations were made by the departments in lieu of exchange of Christmas cards within the departments and, in some cases, included year-end overages in coffee kitty funds.

Con-Trib-Club members, in their Dec. 9 meeting, also allocated $650 to the Volunteers of America to assist with its Christmas appeal and, on recommendation of employes at Vandenberg AFB, allocated $1,000 to the Salvation Army commandary in that area.

Glen Hemphill To Head Flyers

Glen Hemphill will head the newly-organized Convair flying club, Bonair Flyers, as commissioner, J. K. Field, chief of employee services, announced last month.

Hemphill helped organize the flying group last spring and was operations officer before taking over as president of the club in late summer.



Glen Hemphill

Now in test planning in SLV flight test integration (Dept. 684-1), Hemphill first joined the Company at Convair in early 1955 in flight test engineering. He transferred in 1958 to missile flight test and was responsible for coordination of the building of facilities at PALC I and II, when the off-site base at Vandenberg AFB was first established.

A native of Minnesota, Hemphill was with Republic Aviation and General Motors' aircraft assembly plant in Kansas City before moving to San Diego.

Open Golf Tickets Offered at Bargain

Tickets good for admission at all sessions of the San Diego PGA Open Golf Tournament, which will run through this Sunday (Jan. 16) at the Stardust Country Club in Mission Valley, are on sale to General Dynamics people at the reduced price of $4.

They may be purchased at CRA Clubhouse, Kearny Mesa; and at all employe services outlets.

Small Boat Class Begins Next Week

An 11-week course in small boat handling and elementary piloting will be held from 5 to 7 p.m. Wednesdays beginning next week in CRA Clubhouse.

Further information can be obtained by contacting Lee Schenke at ext. 2465 at Kearny Mesa.





CHRISTMAS CHEER—In top photo, Jim Pugh, Leon Davis, Emil Franke and Dick Dubel load food, clothing and gifts from Convair employes to Pala reservation Indians. Below, Delta Divers Cliff Kickbush, Bob Anderson, Chuck Davis and Joe McGinnis rescue coins from Bldg. 2 reflection pool. Money bought Christmas food for reservation.

Mickey Donahoo Winner In Riding Club Points

Mickey Donahoo, 16, daughter of Clyde (Dept. 142-2), took top honors at CRA Riding Club's awards presentation by earning the most points for the year at the club's horse shows.

Mickey was presented a trophy at the annual Christmas party which drew a crowd of 50 to the College Chuck Wagon Dec. 17.

Other trophy winners in individual divisions were: Davy Watson, gymkhana, 12 and under class; Susan Harmer, equitation, 12 and under class; Ken Eiland, gymkhana, 13 through 17; Jan Kreis, equitation, 13 through 17; Judy Watson, gymkhana, 18 and over; LaDonna Donahoo, equitation, 18 and over.

Wes Whitlock of the Sun-Bar Training Stables in Poway made the presentations. Mr. and Mrs. Whitlock, who gave group riding instruction for club members earlier this year, attended as guests of honor.

Two young members of the Convair group also were honored at the Horseman's Executive Council annual award dinner Dec. 22 at Little Bavaria in Sorrento Valley, where trophies were awarded to horses earning the most points in H.E.C. approved shows throughout the year. Gregory Kreis, 18, son of Boyd Spencley, accepted the 1965 champion trophy and Davy Watson, 9, son of David Watson, the reserve trophy.

The club has scheduled a fun show as the first event of this year Sunday (Jan. 16) at CRA horse ring. Activity will begin at 8:30 a.m. and last all day. Entry fee will be 25 cents for each event entered, said Spencley, show manager.

Members will have their regular monthly meeting tonight (Jan. 12), 7:30 p.m., in CRA Clubhouse.

Harry Black Wins Major Prize In Annual Big Game Drawing

Harry Black of Dept. 451 won the portable generator top prize in CRA Gun Club's annual Big Game drawing Dec. 21 at Gillespie Field Clubhouse.

Black's 90-lb. doe taken in Howsier Canyon, San Diego County, entitled him to one of the 52 chances on the prizes given in the yearly drawing for all big game kills. Bad weather and holiday activities cut the expected attendance probably by half, said Commissiloner Jack Swank.

Others taking home hunting gear included Loren Batchman (Dept. 963-3), leather duffel bag. His entry was a mule deer, field dressed out at 100 lbs. James Mercier of Dept. 522-8 won a pair of binoculars for a 100-lb. deer.

G. R. Mayfield (Dept. 041) drew a pair of long thermal underwear with entry of a 165-lb. buck deer. Larry Kelly (Dept. 963-3) won a handwarmer. His kill was a 120-lb. doe.

Thermal socks went to Edwin Budzinski (Dept. 715-0) for a 450-lb. elk. Carl Stringfield (Dept. 401-0) won an ax. He downed a 200-lb. deer.

T. L. Oakley of Stromberg-Carlson won a pair of leather gloves for a 150-lb. deer and a hunting knife went to H. G. Bass (Dept. 595-0) for a 128-lb. Spanish goat downed on Catalina Island with bow and arrow.

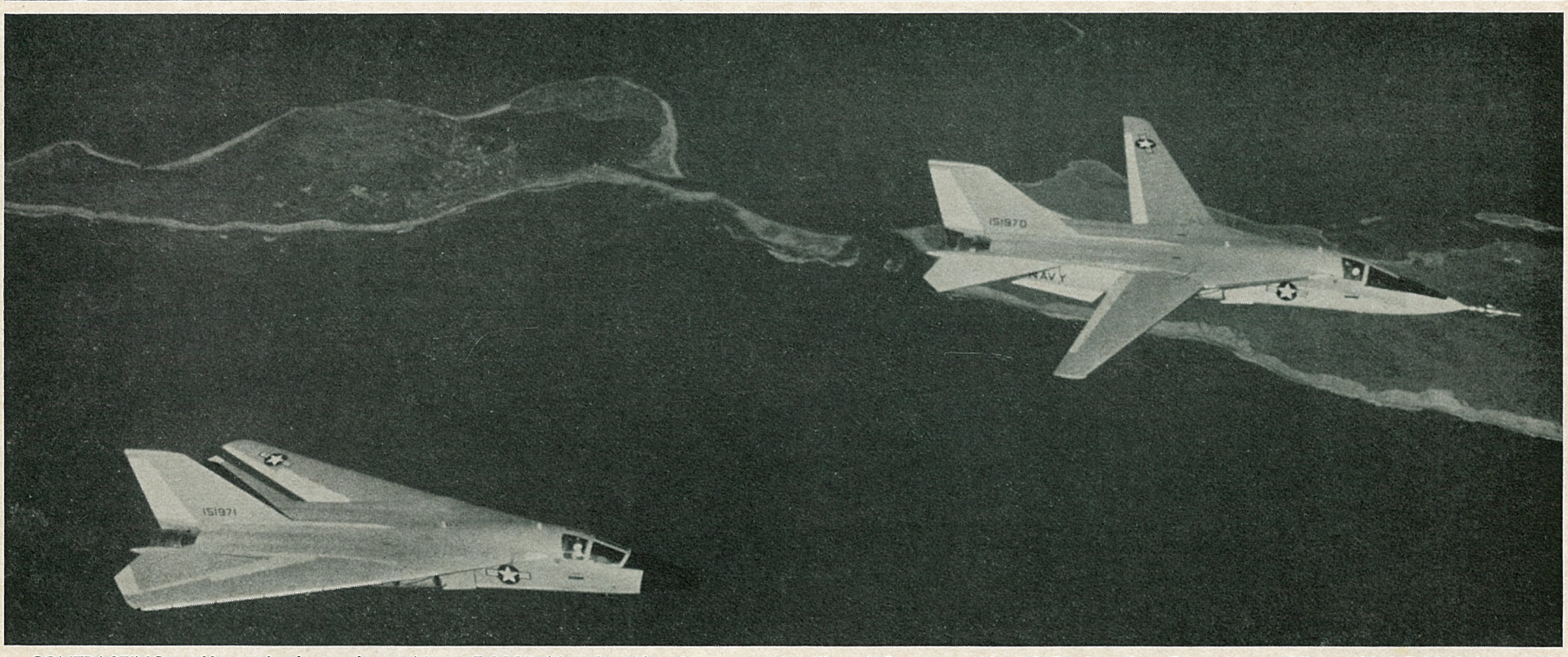
First ATA registered shoot of the year has been set for Jan. 23 at Gillespie Field range. Usual club shoot will be the first Sunday in February.

Golf Schedule For '66 Listed

CRA's first golf tournament of the New Year will be held Jan. 22 and 23 at Cottonwood Country Club. Golfers can sign up today through next Monday, Jan. 17, by phoning ext. 1111 at Kearny Mesa.

Other CRA tournaments scheduled for the year are:

Feb. 26-27	Bonita Valley
March 5-6	Coronado
April 23-24	Cottonwood
May	IRC tournament
June 11-12	Cottonwood
July 30-31	Coronado
Aug. 13-14	Bonita Valley
Sept. 10-11	Coronado
Oct. (Plant Championship	Cottonwood
Nov. 12-13	Coronado
Dec. 3-4	Bonita Valley



CONTRASTING — Unusual photo shows Navy F-111B No. 1 with wings outstretched and No. 2 aircraft with wings swept. Planes flew from Peconic River facility of Grumman Aircraft Engineering Corp. Meanwhile, a third F-111B has made successful first flight. As of late last month, Navy F-111B flights numbered 51.

'Retired' Atlas Missiles Updated For Space Jobs

Modification of the last of a group of nine Atlas D missiles, retired from SAC operational inventory, with material "kits" from Convair have been completed by the San Bernardino Air Material Area at Norton AFB.

Now operational as launch vehicles, the nine renovated "old birds" have been delivered to Vandenberg AFB for use by the Air Force in scientific research missions.

One of the nine, Atlas 34D, was used by the Air Force Office of Aerospace Research to boost the OV1-2 satellite in October and another, Atlas 72D, is scheduled to launch satellites 4 and 5 in the OV1 series.

Convair has had six engineers assigned to Norton AFB for several months supplying engineering support for the "Chalk Talk/Common Link" missile modification program and coordinating supply of about 1,500 Convair "material kits" needed for the project.

Rudy Romero, lead engineer, and Gene B. Durand, senior flight test engineer, were winding up last minute details at Norton related to Convair participation this month. J. R. Robinson of the ABRES D program office at the Kearny Mesa plant has served as assistant project engineer for the program.

Al McCoy, Warren Wellnitz and Don Kerklotz were reassigned to Vandenberg AFB and Arnie Anderson returned to Kearny Mesa following rollout of Atlas 35D, the last of the nine vehicles, last month. Doug Simmons, now at Convair Service Center, and Don Robinson, now in Houston, also assisted at Norton AFB when the project began.

The nine Atlas Ds modified for new missions were numbers 34, 35, 58, 72, 86, 89, 96, 98 and 147. In addition to the shakedown, modification and systems checkout of each vehicle at Norton, engines were overhauled and "hot fired" at Edwards AFB.

Romero said only a half dozen of the 1,500 material "kits" shipped from Convair during a 90-day period for use in the updating and modification failed to arrive on schedule.

Ray Raines of the Kearny Mesa plant, assistant foreman for production control for off-site base support, said the material needed included hardware not on hand or being produced.

"We had assistance from a lot of people in planning, producing and delivering the product," he said. "Convair 'paper work' was used just as if we were doing the job in our own factory."

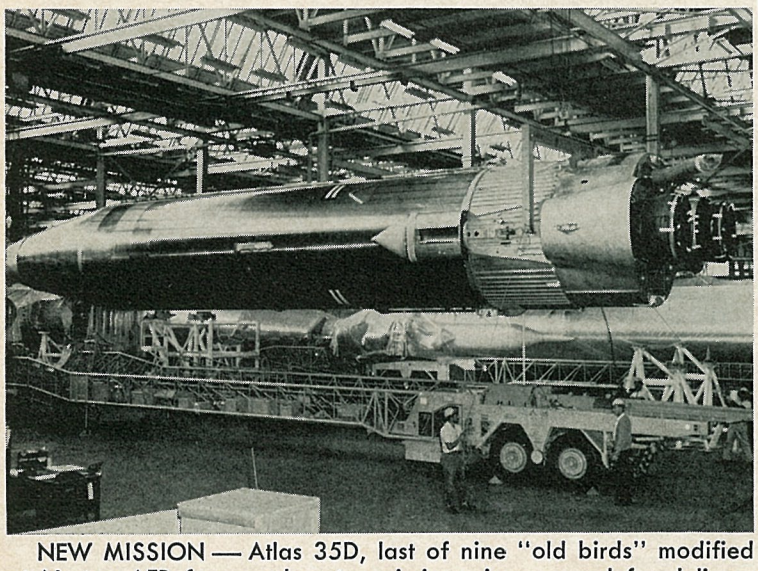
Robinson said Raines' organization and the factory did an "exceptionally outstanding job" maintaining schedule. Kits for the first missile (34D) were delivered a month ahead of schedule.

Although one "missile era" has come to an end at Norton AFB with completion of the modification program, more than 100 other retired Atlas D, E and F series "birds" remain in storage there for possible refurbishment in future years for use in new missions.

"Big Oscar," a program similar to "Common Link" for modification of another five Atlas D missiles retired from SAC inventory, is scheduled to begin next month at Vandenberg AFB with kits to be supplied by Convair.

Amherst Man Joins Internship Program

Michael J. Bartlett, Amherst College graduate cum laude, class of 1965, is the latest to join General Dynamics' Corporate Internship Program. He will serve approximately a year at New York Headquarters, rotating work assignments in different departments.



NEW MISSION — Atlas 35D, last of nine "old birds" modified at Norton AFB for new booster missions, is prepared for delivery to Vandenberg AFB. The Atlas D series missiles had been stored since being retired from SAC inventory.

Scale Model F-111 Given to Academy

A quarter-scale model F-111 is on permanent display in the Visitors Center of the Air Force Academy.

President Frank W. Davis of GD's Fort Worth division presented the model to Academy Superintendent Lt. Gen. Thomas S. Moorman in a ceremony recently at the Academy.

Made of fiber glass, the 18-foot model rotates on a pedestal. The wings sweep back and forth.

Davis presented desk-size F-111 models to each of the 24 cadet squadrons.

1966 RELIABILITY SYMPOSIUM SET

About 1,500 engineers and scientists, including a number from General Dynamics, are expected to attend the 1966 annual Symposium on Reliability (formerly known as the National Symposium on Reliability and Quality Control) Jan. 25 through 27 in the Sheraton-Palace Hotel, San Francisco.

Daniel J. Haughton, president of Lockheed Aircraft Corp., will be a keynote speaker.

A banquet address on "Manned Space Flight—Programs, Progress and Prospects" will be given by Dr. George E. Mueller, NASA's associate administrator for manned space flight and director of NASA's Apollo program.

Drumheller Named To EIA Committee

Appointment of Dr. Carl E. Drumheller of Electronics division to an executive committee of the Electronic Industry Association has been reported by A. A. Farrar, vice president-marketing of Electronics and chairman of EIA's Government Products Division.

Dr. Drumheller, manager of Electronics' Applied Physics Laboratory, is a member of the association's engineering panel—micro-electronics sub-division.

Dr. Drumheller is recognized internationally for his work in thin films.

Yoshihara Chairs 'Flows' Conference

Two Convair men served as chairmen for the Aerothermochemistry of Turbulent Flows Conference held by the American Institute of Aeronautics and Astronautics in San Diego in mid-December.

Hideo Yoshihara of Convair space science laboratory was general chairman, and R. A. Vanden Berg of Dept. 526-6, administrative chairman, of the conference committee. Sessions were held at the Catamaran Hotel, Dec. 13-15.

Foam Shot From a Gun Secures Plane Parts

"Instant" packaging of airplane parts is now possible at Fort Worth division with a foam that shoots on like pressurized shaving cream.

The part is suspended in the box and the foam applied by "gun" in from 10 to 30 seconds, depending on the size of the container. Hardening takes about three minutes and locks the part securely in place.

"The method saves on engineering and drawing time previously involved in bracing and blocking parts for delivery," said Dave Jordan, packaging specialist. "And since foam is lighter, there's a considerable saving in material and shipping cost."

Parts have been packed in a variety of containers from shoebox size to a container large enough to crate a 328-pound jet-engine spike.

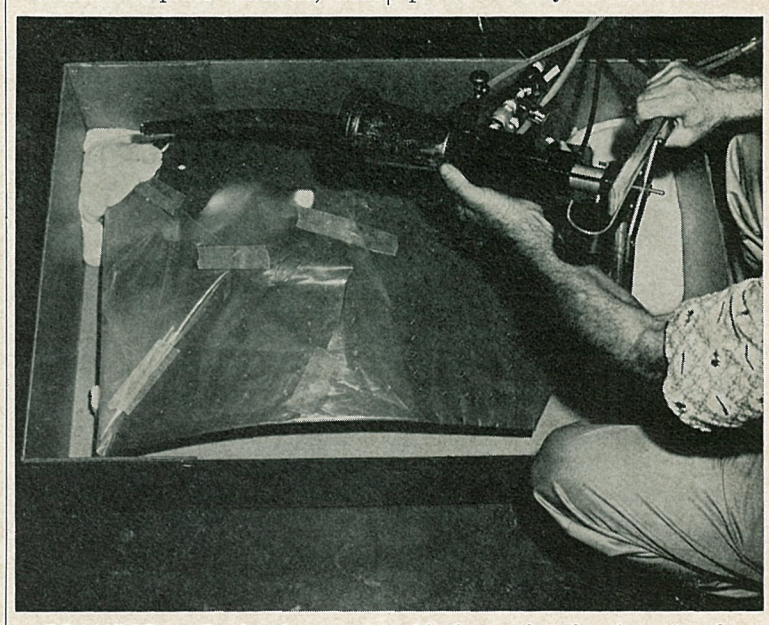
A foam-in-place machine, with two 500-pound containers and a nitrogen and air supply, is used to create the foam. One container uses a resin (diphenylmethane diisocyanate), the other a frosting compound (trichlorofluormethane).

Equal amounts of the two compounds are forced into the assembly gun, where they mix and emerge in frothy suds.

"Consistency of the foam can be made either spongy or hard," Jordan emphasized, "by adjusting the flow of compounds.

"The foam also provides excellent insulation—a fact which saves money. For example, we can use less dry ice in packaging microfilm, thus reduce shipping costs."

Previously, packaging of this sort was done mainly with corrugated double-wall cardboard of up to seven layers' thickness.



FOAMING — Packaging parts with foam that hardens in about three minutes is demonstrated at Fort Worth division.

People Mobility

Interdivisional Transfers

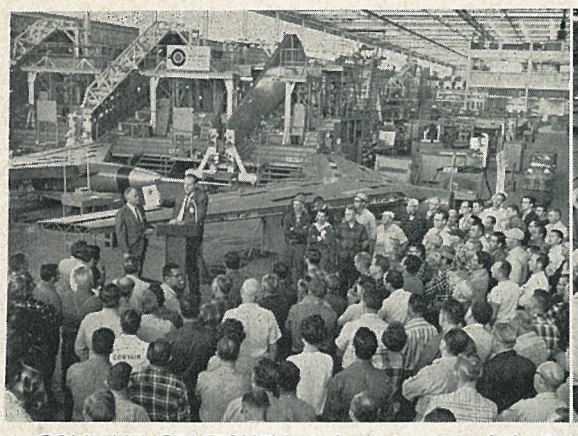
(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

DONALD M. CARLSON (1959) from Electric Boat industrial relations to Corporate Headquarters as coordinator of personnel research.

MURRAY T. BASS (1954) from Stromberg-Carlson, Rochester, to wage and salary administrator, Pomona; **STANLEY C. BRUCKER** (1955) from Pomona to Canadair; **ALVIN C. EULBERG** (1952) from Convair systems engineering to General Atomic; **MELVYN E. POST** (1960) from Convair (Vandenberg) to budgets, Fort Worth.

LOUIS D. MILLER (1963) from Fort Worth to contracts representative, Electric Boat; **BILL R. MIALE** (1955) from Stromberg-Carlson, Rochester to material liaison Electronics, San Diego.

COSTA N. BAGALOFF (1954) from Convair to reliability engineer Electronics, San Diego; **J. PATRICK O'REILLY** (1957) from Electronics, Rochester, to management relations representative Stromberg-Carlson, Rochester; **LEWIS A. CORWIN** (1957) from Stromberg-Carlson, Rochester, to Electronics, Rochester.







CONVAIR CRAFTSMEN — In center, Jack L. Bowers, Convair general manager, compliments machine shop (Dept. 731) at Kearny Mesa plant for winning "Craftsmen of Month" honors in November (their fourth win) and improving quality of work "by hefty margin" during past six months. Bowers said AF and customers "will not be satisfied with anything less than perfection and every time we increase reliability, we save somebody money." Walt Herchold, Dept. 731 general foreman, accepts award. At left, W. E. Magnuson, chief of special projects in reliability, presents Craftsman award on behalf of Bowers to N. P. Pearson, foreman of C-141 empennage assembly (Dept. 041) at Lindbergh Field. He commended department on consistent good work and improvement of product. At right, R. A. Clark, site manager at WTR, holds Craftsmanship Award decal presented to Dept. 576-18 (ABRES A) at Vandenberg AFB by Grant Hansen, vice president-launch vehicle programs, for November win which was the fourth for department. Those present for ceremony included Don Fagan, WTR manager of operations, and Lt. Col. William K. Bailey, 6595th Test Wing site commander. Fourth-time winners receive decks of "space" playing cards.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 19, No. 2 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, January 26, 1966

Convair Team Returns After 2½ yrs. at Lewis

Personnel from Convair's Dept. 977 have "returned home" from NASA's Lewis Research Center and its Plum Brook Station in Ohio after 2½ years of assisting with tests of Atlas and Centaur vehicles and other space hardware under simulated flight conditions.

Grant L. Hansen, Convair vice president for launch vehicle programs, has received a letter from Edmund R. Jonash, Centaur project acting manager for NASA, commending the Dept. 977 personnel for their services.

Among tests on which they provided assistance were:

Two full-scale inter-stage adapter separation tests for AC-4 and AC-6 configurations.

Structural and dynamic tests with Atlas 116-D.

Several simulated Centaur 6-A flights in a space environmental test chamber and Centaur dual vent valve tests.

OAO nose fairing tests at 100,000-foot simulated altitude.

Surveyor nose fairing tests for AC-4 and AC-6 configurations at 400,000-foot simulated altitude.

Testing of the combined Atlas 116-D, Centaur 5-C and Surveyor dynamic model in E Stands, a dynamic research facility.

Lewis Research Center occupies a 350-acre site in Cleveland and Plum Brook Station is 60 miles distant near Sandusky, Ohio.

J. E. Lauen, chief of Dept. 977's Lewis Research Center test operations and support, said the Convair employes during the 2½ years in Ohio had a high level of morale and efficiency and excellent cooperation from NASA employes with whom they worked.

"One of our primary duties was acquainting NASA personnel with our vehicles, test systems and paperwork," he said.

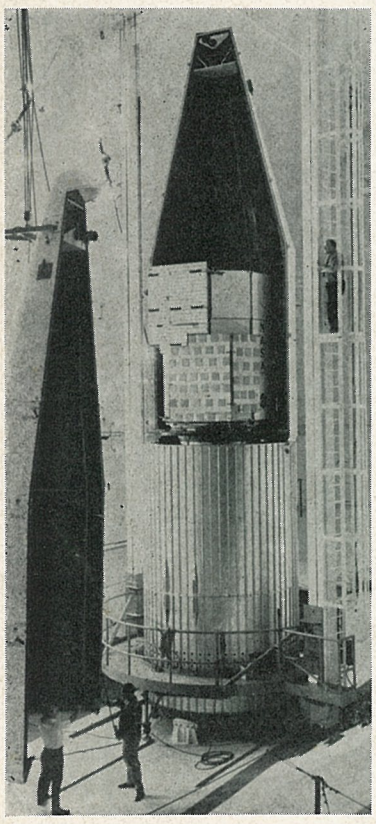
Simple ingenuity was evident in getting valuable information with minimum cost in some of the tests. At one time, toothpicks stuck in modeling clay were used in determining how much clearance — or lack of it — there was when nose fairings were released under high altitude conditions. Aluminum foil cylinders were used to check resiliency of a net before it was used to catch the heavy fairings.

In the Atlas-Centaur-Surveyor tests, water and styrofoam balls were used to simulate weight of fuels in the Atlas and Centaur vehicles. Lateral, longitudinal and torsional tests were conducted on the entire three-part vehicle.

In Atlas-Centaur separation tests, shaped charge and eight retro-rockets were fired and the vehicles separated with "five degrees of freedom" motion at 100,000-foot simulated altitude in the center's 25-foot-diameter space power chamber.

Two hundred thermocouples were used in addition to normal

(Continued on Page 2)



NOSE FAIRING — OAO nose fairing is lifted into place for dynamic separation tests at 100,000-foot simulated altitude at NASA Lewis Research Center. F. M. Russell of Convair Dept. 977, on ladder at right, and NASA personnel, bottom, give indication of fairing size.

Little Joe Boosts Apollo Spacecraft

A Convair-built Little Joe II launch vehicle successfully boosted a production-type Apollo spacecraft toward an altitude of 77,000 ft. last week in final flight test of a series to proof the escape system for manned flights to the moon.

The early morning launch Jan. 20 was an "unqualified success," J. B. Hurt, Convair's Little Joe II program manager, reported from White Sands Missile Range, N. M.

The flight ends a two-year NASA program to test the emergency escape system in sub-orbital flight tests before actual firings into space.

Maj. Gen. Funk Praises Convair On Reporting

Maj. Gen. Ben I. Funk, commander of the Air Force's Space Systems Division, has commended Convair division for outstanding ratings it has received on quarterly Financial Management Reports (Defense Department Form 1097) during the past year.



Maj. Gen. Funk

"I am highly pleased with your continuous outstanding ratings on the Contractor Financial Management Report evaluations during the last four quarters," General Funk said in a recent letter to Jack L. Bowers, Convair general manager.

"Your exemplary efforts have assisted greatly in establishing a reliable and credible financial management indicator."

General Funk extended appreciation to Convair personnel who prepare the quarterly reports. "I know they will make every effort to retain this outstanding rating on your future reports," he said.

Convair received perfect 100 point ratings on each of its Financial Management Reports of Dec. 31, 1964, and March 31, June 30 and Sept. 30, 1965. Six of 12 major SSD contractors received such ratings.

Eugene Fox, Convair budgets manager, said the quarterly reports cover commitments and expenditures to the report date with a financial forecast for the remainder of each SSD project "in work" at Convair.

"This assists SSD in staying within its fiscal year funding limitations," he said.

Primarily responsible for preparation of the quarterly reports are Dick Naffke of the forecasting section of division budgets, Roger Brown of the SLV budgets section and Clark Welsh of the revenue management department.

Electronics Holding Technical Seminars

Weekly technical seminars arranged by Electronics-SD to keep their engineers informed of rapidly-moving technology are held each Wednesday evening, 5:05 to 6 p.m., in Bldg. 5 engineering auditorium, Lindbergh Field plant. They are open to all General Dynamics employes. Last week's speaker was Richard Bader of Fairchild Corp. who described that company's work with hybrid circuits.

Goal Established In Cost Reduction

A Corporation-wide Cost Reduction/Profit Improvement target of $111.5 million has been set for efforts initiated during 1966, Max Golden, General Dynamics vice president, announced this week.

"Of this sum, we are shooting at $45.9 million to accrue during 1966, with the balance achieved later as a result of actions taken during the year," he continued.

Golden said that performance figures in the program during 1965 have not yet been finally analyzed.

"However, it appears certain that operating units have far exceeded the 1965 goals set for them and this is most gratifying.

"It is of the utmost importance to the Corporation that operating units continue to pursue vigorously all forms of cost reduction again in 1966 in order to demonstrate General Dynamics' determination to lower procurement costs to our customers and deliver a dollar's worth of product for every dollar spent."

Meanwhile, Golden announced that General Dynamics, as in 1965, will participate in cost reduction exhibits planned in 1966 in connection with Advanced Planning Briefings sponsored by Department of Defense and the National Security Industrial Association. Briefings will be held in five different cities during March and April, featuring displays from major defense contractors describing specific examples of actual efficiencies achieved.

James N. Sowers, director of cost analysis at Corporate Headquarters, has been named to coordinate the GD effort.

Four GD posters from a number submitted in 1965 made the "finals" and were displayed in the Pentagon to climax the program.



READY FOR SHIPMENT — H. G. Rote, Dept. 024 foreman at Convair's Lindbergh Field plant, and J. F. Ames, Dept. 024 assistant foreman, check finished DC-9 panel in paint shop just before packaging for shipment to Douglas' Long Beach plant by Convair truck.

First Door Jamb For Douglas Sent Out Ahead of Schedule

First of 24 service door jambs Convair is building for Douglas Aircraft Co.'s DC-9 jet transports was trucked by Convair transportation from San Diego to Douglas' Long Beach plant on Jan. 11, three days ahead of schedule.

The door jamb, designed as a fuselage section of the plane, was to be installed at Douglas last week in the first DC-9 going to Eastern Airlines. Eastern had specified that the special type of service doors be installed opposite passenger doors to allow complete food units to be wheeled into galleys of the planes.

Convair designed and is now fabricating 24 door jamb panels and a like number of doors for

(Continued on Page 2)

Log Book Entries

Awards

CONVAIR

Employe Suggestion awards approved for the weeks ending Dec. 28, 1965, Jan. 7 and 14.

Dept. 001, I. Dionne, E. C. Mackey, L. V. Malody, H. G. Mondy (two awards), V. Poquette; Dept. 002, R. E. Blanco, K. J. Croft, R. A. Davis, R. Gamboa, J. Ramirez; Dept. 015, G. C. Archbold, C. Brown, S. S. Jensen, M. E. Long; Dept. 016, W. J. Gibson, J. Velasquez; Dept. 019, D. R. Bryson; Dept. 024, J. P. Kany, C. L. McNeal; Dept. 041, G. A. Hasti, C. R. Mansfield, J. D. Volkov.

Dept. 123, C. E. Lerma, L. A. Lopez, D. R. Pierce; Dept. 124, H. I. Reavely, Dept. 126, M. R. Dehner; Dept. 128, R. E. Arndal, K. G. Blair, W. E. Rice; Dept. 130, H. J. Albright; Dept. 140, G. W. Kocontes; Dept. 141, M. Bates, D. D. Hinch, F. H. Ryle (two awards); Dept. 143, J. S. Adams, P. Plus; Dept. 146, K. A. Krueger, C. M. Smith; Dept. 193, H. G. Scott.

Dept. 223, V. B. Haulk; Dept. 225, J. H. Kersey Jr.; Dept. 250, G. R. Corella; Dept. 400, Y. Z. Morris; Dept. 401, J. C. Ascencio, D. V. Neece; Dept. 454, R. L. Furnish, P. T. Kaneyuki; Dept. 524, P. W. Penn; Dept. 576, W. D. Brose; Dept. 578, O. H. Moore Jr.; Dept. 642, R. L. Creamer, H. S. Greiner; Dept. 644, A. G. Hedlun; Dept. 673, J. G. Helleis; Dept. 684, B. R. Hamrick; Dept. 731, J. L. Obermuller; Dept. 733, R. E. Reeves; Dept. 756, K. W. Swant.

Dept. 759, G. D. Lundquist (two awards), L. O. Marine, H. R. Short; Dept. 763, R. L. Brown, C. W. Neal, E. Senior, J. D. Willingham; Dept. 780, J. A. Vierhus; Dept. 812, L. H. Barber; Dept. 818, E. F. Cox, H. W. Fuller; Dept. 832, C. F. Foster (two awards); Dept. 833, L. Rieder; Dept. 835, M. A. Randel Jr.; Dept. 847, M. F. Gonzales (four awards); Dept. 960, R. M. Mitchell; Dept. 964, K. K. Eulette; Dept. 988, T. J. Henry.

In-Plant Training

ORIENTATION

NEW EMPLOYES—Educational services staff. Lindbergh Field, ext. 491. Bldg. 14 auditorium, Tuesday, Feb. 8, 8 a.m. and 4:30 p.m. Kearny Mesa, ext. 1931. Bldg. 17, Room 3, Monday, Feb. 7, 8 a.m.

PROFESSIONAL/TECHNICAL

HYDROGEN PEROXIDE (H_2O_2) SAFETY & HANDLING CERTIFICATION—Hal Rubin, Kearny Mesa, ext. 1931. Jan. 25, 3 hours, 8:30-11:30 a.m. Bldg. 17, Room 1, Kearny Mesa. Limited enrollment.

PLASTICS PRODUCTION MIXING CERTIFICATION — Hal Rubin, Kearny Mesa, ext. 1931. Feb. 14-18, 10 hours, 1:30-3:30 p.m. daily. Bldg. 27, Kearny Mesa. Limited enrollment.

AIRPLANE MECHANICS (On-the-Job Training) — Eight hours per day, 26 weeks. Lindbergh Field, Bldg. 3. Coordinator, Wayne Turner, ext. 491, Lindbergh Field.

F&CD-IR—Hal Rubin, Lindbergh Field, ext. 491. Call for future schedule.

MILLING MACHINE OPERATORS (On-the-Job Training)—Eight hours per day, 26 weeks, Lindbergh Field, Bldg. 3. Coordinator, Wayne Turner, ext. 491, Lindbergh Field.

RELIABLE ELECTRICAL CONNECTIONS—Educational services staff. For information and quota call ext. 1931, Kearny Mesa. Weekly 7 a.m.-3:45 p.m. Bldg. 17, Room 10, Kearny Mesa.

AFTER HOURS TRAINING IN-PLANT

UNIVERSITY OF CALIFORNIA EXTENSION COURSES — Management Presentation Tools and Techniques, Wednesdays, 5-7:30 p.m. Feb. 9-June 8. Bldg. 17, Room 3, Kearny Mesa; Vince Martin, instructor.

Data Processing and Computer Programming, Tuesdays, 5-7:30 p.m., Feb. 8-June 14. Bldg. 17, Room 7, Kearny Mesa; F. D. Schwend, instructor.

Management Information Systems, Mondays, 5-7:30 p.m., Feb. 7-June 13. Bldg. 17, Room 7, Kearny Mesa; C. K. Twohey, instructor.

Computer Programming, Thursdays, 5-7:30 p.m., Feb. 10-June 9. Bldg. 17, Room 7, Kearny Mesa; F. D. Schwend, instructor.

Information Storage and Retrieval, Tuesdays, 5-7:30 p.m., Feb. 8-June 14. Bldg. 17, Room 3, Kearny Mesa; Carl Dragila, instructor.

CITY COLLEGE COURSES—Electronics 75 (Introduction to Digital Computers); Tuesdays, 5-7 p.m., Feb. 8-June 14. Bldg. 17, Room 2, Kearny Mesa; Dick Forrest. Electronics 76 (Computer Logic and Circuitry), Thursdays, 5-8 p.m., Feb. 3-June 16. Bldg. 17, Room 2, Kearny Mesa; Dennis Suchecki.

OUT-OF-PLANT

UNIVERSITY OF CALIFORNIA EXTENSION, SAN DIEGO—Catalogues for the spring semester are available at Convair educational services offices, Kearny Mesa and Lindbergh Field plants.

TUITION REFUNDS—Employes must submit a request (Form A346) to educational services no later than **THREE** weeks after the starting date of the class. Requests submitted after this time will not be approved.

Personals

CONVAIR

The family of John Douglass gratefully acknowledges the beautiful floral remembrance sent at the time of his death.

Jessie Douglass.

General Dynamics News

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Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

Service Emblems

CONVAIR

Service emblems due between Jan. 15 and Jan. 31.

Thirty-year: Dept. 024-0, H. G. Rote; Dept. 050-0, J. H. Famme; Dept. 143-1, L. E. Stanley; Dept. 509-1, H. D. Hershey; Dept. 644-1, L. O. Lyte; Dept. 744-0, A. H. Leboffe; Dept. 964-1, C. F. McCabe.

Twenty-five year: Dept. 015-0, E. Krupicka; Dept. 031-0, C. P. Glover; Dept. 041-0, B. F. King, J. R. Lewis, G. R. Mayfield, L. W. Sage; Dept. 140-0, D. R. Archibald; Dept. 140-1, A. L. Sack; Dept. 145-1, R. Sanchez Jr.; Dept. 149-2, D. B. Seaburg; Dept. 250-3, J. N. Strong; Dept. 300-3, P. A. Wuthnow; Dept. 401-0, W. H. Glenn; Dept. 401-4, R. W. Verdon; Dept. 507-0, D. T. Ostenso; Dept. 511-1, J. R. Margole; Dept. 574-1, C. G. Skeen; Dept. 576-2, T. P. Mellen; Dept. 591-0, Elmer L. Smith; Dept. 596-0, G. E. McPherren; Dept. 674-2, C. L. Holland; Dept. 817-0, C. D. Knadle; Dept. 834-1, T. B. Rogers; Dept. 838-2, J. A. McSparron; Dept. 838-3, M. Frankel; Dept. 839-1, R. H. Johnson; Dept. 839-2, D. M. Luscomb; Dept. 959-0, J. E. Lucks; Dept. 969-0, K. W. Jeremiah; Dept. 970-0, L. W. Kerner; Dept. 976-3, C. W. Meinsen.

Twenty-year: Dept. 015-0, R. G. Williams; Dept. 130-1, A. Hodges; Dept. 145-1, R. R. Serrano; Dept. 149-2, J. F. V. Dunn; Dept. 170-1, R. E. Nelson; Dept. 400-1, G. W. Durkee; Dept. 759-0, H. M. Smith; Dept. 839-1, J. F. Jaehn.

Fifteen-year: Dept. 015-0, R. C. Morales; Dept. 019-0, A. Enriquez; Dept. 031-0, F. Reed; Dept. 041-0, G. C Botello; Dept. 057-0, J. P. Spieker; Dept. 101-7, D. Rodriguez; Dept. 110-2, S. J. Harris; Dept. 113-0, E. B. Barksdale; Dept. 142-2, P. E. Pease; Dept. 149-1, W. R. Hackett; Dept. 195-1, P. R. Conner; Dept. 195-3, A. R. Mosco; Dept. 210-2, A. G. Mitchell; Dept. 250-5, E. E. Smith, G. A. Young; Dept. 300-3, W. Porter; Dept. 400-1, G. M. Hood; Dept. 401-7, P. K. Ruggles; Dept. 451-0, J. J. Quarles; Dept. 491-0, G. D. Peedie;

Dept. 523-4, B. J. Arendt; Dept. 533-1, M. R. Smith; Dept. 545-4, J. C. Lievens; Dept. 576-1, G. S. Cunningham, W. G. Whitted; Dept. 633-4, D. J. Jackson; Dept 643-1, L. K. Carlile; Dept. 744-0, S. Yurich; Dept. 759-0, C. R. Law, K. A. Nesbitt, R. R. Ponchetti, G. B. Thompson; Dept. 761-0, M. L. Robinson; Dept. 780-2, N. S. Cole; Dept. 835-5, R. B. Bailey; Dept. 839-2, E. G. Halshaw; Dept. 957-0, J. W. King; Dept. 963-3, W. L. Rix; Dept. 964-1, H. F. Mohrlock Jr.; Dept. 974-4, W. N. Beers; Dept. 976-4, L. E. Goodale.

Ten-year: Dept. 015-0, G. C. Archbold; Dept. 019-0, H. C. Riley; Dept. 058-0, J. C. Morris, J. A. Myrann; Dept. 113-0, R. B. Carpenter; Dept. 123-0, G. G. Sanders; Dept. 127-0, B. McGranahan; Dept. 130-1, C. D. Carver, F. H. Fogg, E. S. Paras; Dept. 130-4, B. L. Griffin; Dept. 130-5, L. C. Woline; Dept. 131-7, E. L. Thrall; Dept. 132-1, P. M. Houtkooper; Dept. 141-0, L. S. Franklin; Dept. 141-2, F. T. Hoffman; Dept. 142-1, G. L. Holden; Dept. 142-2, B. S. Lukaseky; Dept. 142-4, J. D. Stevens; Dept. 143-2, R. E. Barnier, J. G. Roersma; Dept. 143-3, R. D. Dege; Dept. 143-4, J. R. Colbert; Dept. 143-6, F. L. Estevane; Dept. 191-0, F. C. Novak, P. D. Thomas; Dept. 193-1, J. A. Dematteis; Dept. 193-3, M. Seifts.

Dept. 210-4, J. W. Miller; Dept. 227-0, V. R. Schillo; Dept. 250-1, M. Cox; Dept. 250-5, G. Dunlavey; Dept. 401-0, F. L. Warner, R. J. Wilsterman; Dept. 491-0, T. C. Smith; Dept. 511-1, J. W. Lyman; Dept. 532-1, J. B. Richmond; Dept. 543-5, D. P. Hyland; Dept. 550-0, S. P. Hartzberg; Dept. 572-3, P. M. Fleek; Dept. 574-3, J. Marroquin Jr.; Dept. 582-0, J. E. Sherley; Dept. 584-3, J. F. Loos; Dept. 586-2, W. C. Riddell; Dept. 591-0, F. S. Barkelew; Dept. 643-0, G. E. Hildahl; Dept. 652-0, D. G. Dewey; Dept. 658-0, T. Pehka.

Dept. 661-0, A. T. Harrison; Dept. 674-2, H. C. Billings; Dept. 733-0, F. J. Wisenberg; Dept. 756-0, H. S. Winter; Dept. 780-2, A. M. Fader; Dept. 780-4, A. I. Patterson, A. H. Payne; Dept. 818-1, W. R. Barnes Jr., M. M. LaCoste; Dept. 832-3, G. L. Meskimen; Dept. 833-1, D. A. Leever; Dept. 835-2, O. B. Simonton Jr.; Dept. 954-1, E. R. Minton; Dept. 962-5, V. W. Siebert; Dept. 967-1, U. Hammer; Dept. 974-4, D. E. Weisbach; Dept. 977-0, F. M. Russell; Dept. 978-3, R. J. Surber; Dept. 999-0, R. C. Vik.

ELECTRONICS

Fifteen-year: Dept. 1763, V. R. Burton, R. S. Ersland, W. J. Farrar; Dept. 4074, J. T. Welch; Dept. 6867, C. L. Ross, N. W. Sylvester; Dept. 7083, J. H. deKerguelen.

Ten-year: Dept. 1763, J. B. Klerekoper; Dept. 4073, E. R. Rush; Dept. 4074, J. H. Geisler; Dept. 7549, D. N Hale.

STROMBERG-CARLSON

Twenty-five-year: Dept. 8101, J. W. Swank.

Ten-year: Dept. 8575, E. J. Boilard Jr.; Dept. 8577, T. S. Harris; Dept. 8681, B. M. Syvinski.

Retirements

CONVAIR

BLODGETT — Earl W., Dept. 821-2. Seniority date Aug. 17, 1949, retired Dec. 12, 1965.

BROUILLET — Paul V., Dept. 322. Seniority date March 4, 1957, retired Dec. 17, 1965.

COOPER—Carl O., Dept. 759. Seniority date Aug. 18, 1947, retired Dec. 29, 1965

GREEN—Lewis W., Dept. 250-5. Seniority date May 5, 1942, retired Jan. 3.

HECHT—Fred, Dept. 522-6. Seniority date Aug. 3, 1953, retired Dec. 29, 1965.

HOLMES—Forrest N., Dept. 405. Seniority date July 12, 1954, retired Dec. 10, 1965.

JENNINGS—Stanley T., Dept. 526-6. Seniority date May 1, 1956, retired Dec. 17, 1965.

KENYON—Leslie N., Dept. 113. Seniority date Oct. 25, 1956, retired Dec. 29, 1965.

McKAY—Harry, Dept. 576-2. Seniority date Aug. 16, 1950, retired Dec. 28, 1965.

MORGAN — James R., Dept. 759-0. Seniority date Jan. 29, 1947, retired Dec. 29, 1965.

PARKS—Wesley H., Dept. 62-5. Seniority date Sept. 11, 1957, retired Dec. 10, 1965.

ROYAL—Gordon S., Dept. 376-5. Seniority date Nov. 21, 1950, retired Nov. 28, 1965.

VAL DEZ—M. C., Dept. 130-8. Seniority date Jan. 15, 1942, retired Dec. 21, 1965.

WAINWRIGHT — James L., Dept. 509-1. Seniority date Aug. 5, 1935, retired Dec. 29, 1965.

WALLER — Eugene L., Dept. 644-2. Seniority date March 2, 1953, retired Dec. 29, 1965.

Team Returns From Lewis

(Continued from Page 1)

flight instrumentation in the Centaur 6-A "high altitude" tests. In addition to assisting with installation and checkout of control consoles and support systems and instrumentation, the Convair men assisted with analysis of data and issuance of problem reports.

NASA personnel are continuing post buckling tests on the Atlas 116-D and Centaur 5-C vehicles and environmental testing on Centaur 6-A with some systems updated to AC-8 configuration.

Convair's Dept. 977 personnel were treated to a "going away" party Dec. 14 in Cleveland.

H. F. Eskesen, F. M. Russell and G. E. Kelley have been reassigned to ETR, Tom Jones to the Point Loma Test Site and G. G. Christ, E. R. Appel, J. P. Gimbel, C. W. Goodin and R. E. Masters to CSTS at Kearny Mesa.

Others, all reassigned to the Kearny Mesa plant, are Lauen, R. F. Brown, H. W. Eger, P. I. Ferguson, J. E. Nixon, F. M. Russell, N. M. Skow, E. H. Vossen and R. E. West.

After the successful AC-4 flight in 1964, John H. Povolny, chief of the test engineering branch at Lewis, in a memorandum to Lauen called successful performance and jettisoning of the Centaur nose cone during the flight a "direct result" of "beyond the call of duty" efforts of men in the department.

Lauen said work of the department also had a bearing on NASA personnel at the E Stand at Plum Brook Station receiving NASA's Group Achievement Award in 1964, the first time for the award to be given to a Lewis group.

'Do Good Work' Program Told At Army Depot

Navajo, Zuni and Hopi Indians employed at the 21,000-acre Ft. Wingate Army Depot in Gallup, N.M., have been briefed on the Convair division's "Do Good Work" program.

Wes Magnuson, chief of special projects in reliability control for Convair, was a key speaker Jan. 7 at kickoff ceremonies for a new Zero Defects program being established at Ft. Wingate.

Since some of the Indians among the 500 employes at the depot do not speak English, the talk was silently translated for them into Indian sign language by interpreters.

Ft. Wingate, now a major munitions storage depot, dates back to 1860 and once served as headquarters for Kit Carson and as a boyhood home of Gen. Douglas MacArthur.

Magnuson also described the "Do Good Work" program Jan. 11 for 500 management personnel at Electronics division in Rochester, N.Y.; Jan. 12 for 90 management personnel at Electric Boat in Groton, Conn.; and Jan. 13 for 75 members of the Texarkana chapter of the American Society of Quality Control in Texarkana, Tex.

Invention Disclosures

CONVAIR

HUGHES—J. A., Dept. 963-1, R. W. ECKERT, Dept. 963-2, and F. REAVELL, Dept. 963-2. (FLSC) Electrical Disconnect.

MAKI—S. C., Dept. 551-3. Torque-Velocity Extender for Proportional Electric D.C. Motor Control.

PRICHARD—C. B., Dept. 970-1. Pre-Formed Welding Material. Push-On/Pull-Off Valve/Protective Cap.

TRASKELL—A. P., J. S. NUDING, L. E. SIDEN, and J. E. RAYNOHA, all Dept. 663-0. Tandem Butterfly Valve Closures.

Deaths

CONVAIR

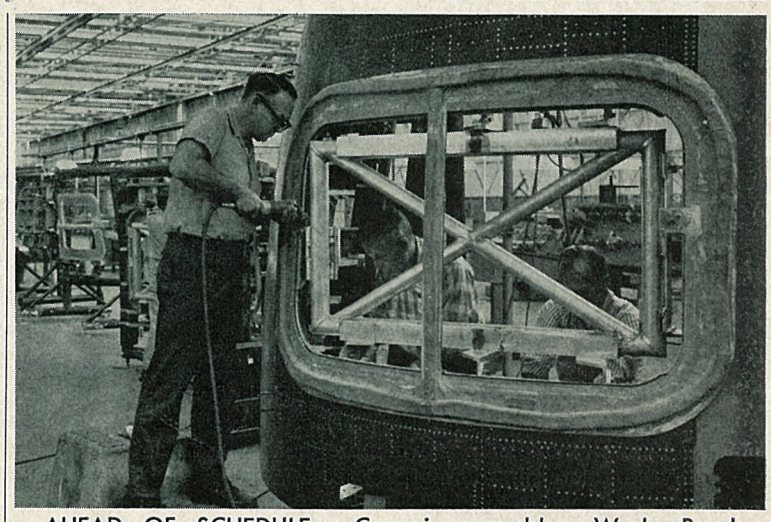
HAINES—Arthur S., Dept. 973-1. Died suddenly Jan. 19. Survivors include wife, Betty J.

CAPE KENNEDY

ADAMS—A. A., Dept. 571-3. Died Jan. 11. Survived by wife, Eleanor K.

CONVAIR SERVICE CENTER

MURPHY—Glenn E., Dept. 300. Died suddenly Jan. 2. Survived by a stepson, R. Fish, of Encinitas.



AHEAD OF SCHEDULE — Convair assembler, Wade Bender, routs around door opening of first DC-9 door jamb panel completed three days ahead of schedule for Douglas Aircraft. Working on inner side of 13x10-ft. panel, lying sideways in fixture, are Ed Yturralde and O. D. McGraw, both Dept. 024.

First Door Jamb For Douglas Sent Out Ahead of Schedule

(Continued from Page 1)

Douglas under a subcontract received last fall.

First door unit will be delivered Feb. 11. Delivery schedule calls for shipment of the second door jamb on Feb. 18 with second door to go out March 18. Third door jamb is scheduled for delivery the first of April and third door on April 29. Fabrication work on the entire order will extend into early 1967 with production peaking at completion of two units a month.

Max R. Yale, program manager of Convair's assist work for Douglas, said that he is extremely pleased with progress and the cooperation of all people engaged in the work. "We certainly have every reason to expect that the remainder of the articles will be completed on or ahead of schedule," he continued.

Fabrication is being done in Dept. 024 at Lindbergh Field plant under H. G. Rote, foreman. Rote said that the task is especially particular in view of the close tolerances to assure exact fit as the 13x10-ft. panels are incorporated into the plane's fuselage. For instance, seven groups of bolt holes in longerons at the bottom of the door opening must be drilled exactly to match mating holes on the aircraft structure.

First five door units will be fit-checked separately at Douglas, and from the sixth article through the rest of the order, at Convair.

J. F. Ames, Dept. 024 assistant foreman, and C. W. Stafford, tool engineer in the Convair tool project office, were to be on hand at Douglas during pre-check fit and mating of the first article to coordinate interface mating during installation.

Accompanying the Jan. 11 delivery were Yale; W. D. Reed, manager of production engineering; and O. C. Mecham, contract administrator of Douglas subcontracts.



COMMENDATION — Phil Harr, director of reliability control, left, presents certificate of commendation to John E. Vondracek of Dept. 142-0 for cost reduction idea that will save Convair more than $100,000. William Olson of Dept. 143-2, center, was commended for submitting nine cost reduction proposals in 1965 that will save a total of $185,000 during the first year.

Reliability Control Cost Savers Honored For Valuable Proposals

Twenty-four reliability control department personnel received Certificates of Commendation Jan. 14 for cost reduction ideas that are expected to save Convair division more than a half-million dollars during the next two years.

Certificates were presented by Phil Harr, director of reliability control, in ceremonies in the Bldg. 2 presentation room at Kearny Mesa and were for proposals submitted during the last quarter of 1965.

Eric C. Callard, program administrator, said savings from the projects brings total for the year for the department to $2,973,000. The department exceeded its $2,492,300 goal.

High man for the quarter was John E. Vondracek of Dept. 142-0 with a work measurement program proposal that resulted in more efficient utilization of men and equipment. It will save an estimated $100,801.

William Olson of Dept. 143-2 received special recognition for having submitted nine projects during the year that will have a estimated savings of $185,000.

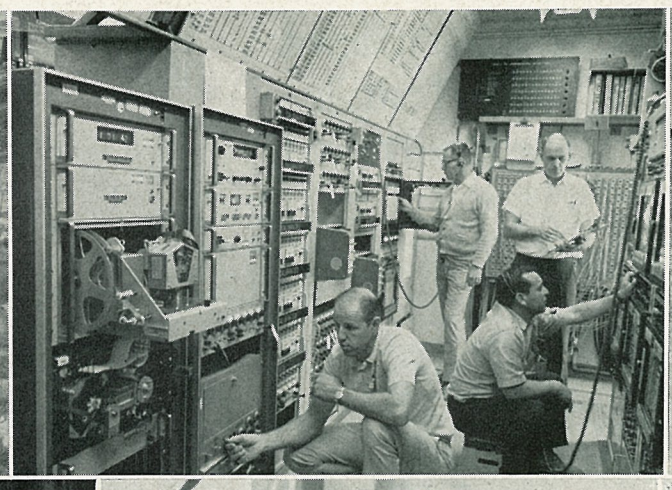
Olson's nine projects were related to tape and fabric sample testing, seal test inspections, military specification files, Centaur parts status reports, combination of tasks in receiving inspection, control office tasks, elimination of daily work sheets, rearrangement of receiving inspection accumulation area and reduction of leak check time for launch vehicle connectors.

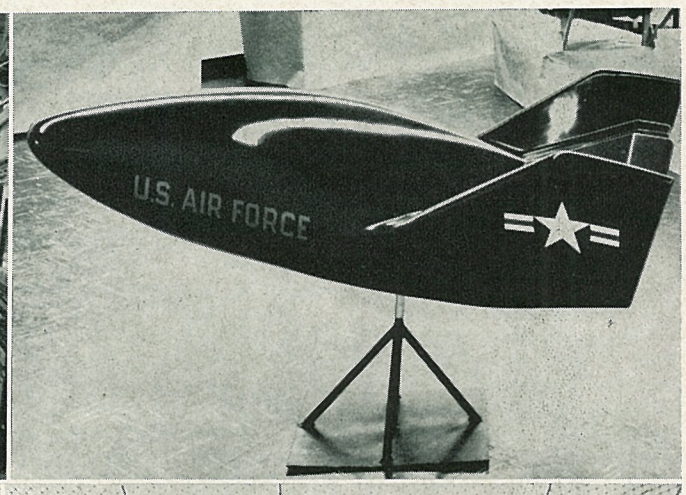
Other men receiving certificates, their department numbers and estimated savings are:

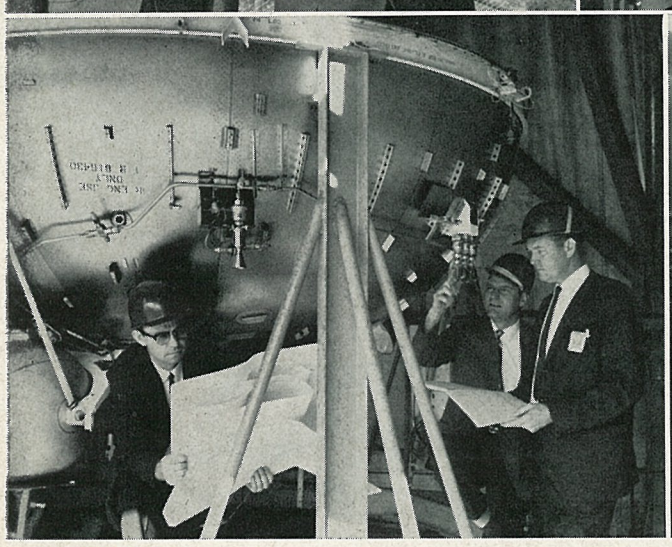
J. A. "Woody" Woodington, Dept. 142-0, $50,739; Ted Lamoureux, Dept. 142-0, $44,496; Glenn Whaley, Dept. 142-0, $42,857; Hal Story, Dept. 146-0, $40,029; Ralph Avitable, Dept. 141-4, $37,395; Bud Buffat, Dept. 143-1, $24,261; Les Dassoff, Dept. 146-3, $17,300; C. L. "Butch" Amaral, Dept. 140-1, $15,864; E. H. Lawton, Dept. 143-3, $13,810; L. S. Franklin, Dept. 141-0, $12,934; William Lux, Dept. 141-3, $12,891 and Fred Baebler, Dept. 143-3, $12,509.

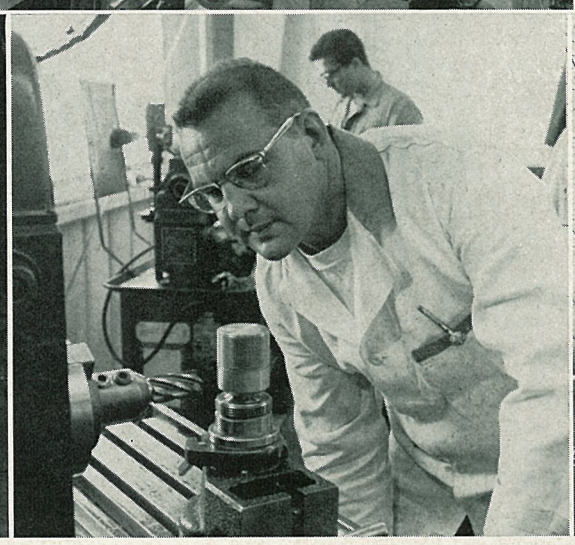
Also William Kirk, Dept. 141-2, $7,762; Wesley Knox, Dept. 141-2, $7,514; William Hollar, Dept. 141-2, $7,514; Earl Smith, Dept. 141-2, $6,317; Gene Taylor, Dept. 146-4, $6,048; George Huff, Dept. 141-3, $3,697; Robert Herold, Dept. 141-3, $3,405; Richard Dubel, Dept. 141-3, $2,640; Robert Woodward, Dept. 141-2, $1,574; D. K. Krosch, Dept. 141-2, $1,574 and Gerhard Gross, Dept. 141-4, $1,010.

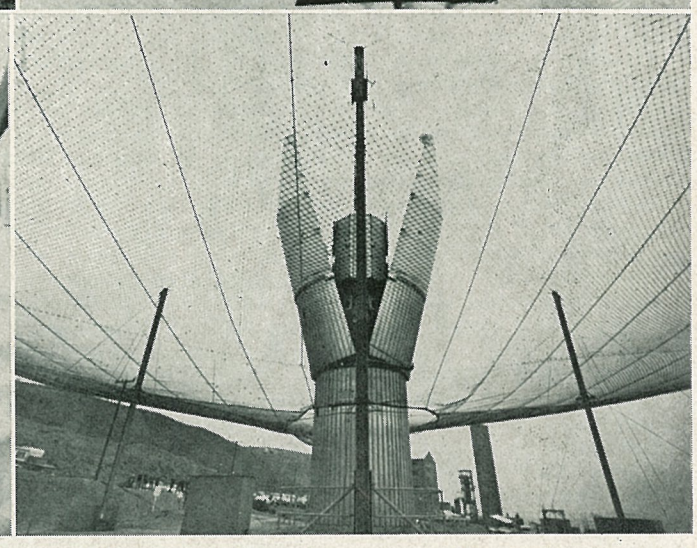












MANY TASKS — Variety marks activity at Convair's Point Loma Test Site. Top left: Fred Wallace, operations chief, and Charles Graser, general foreman, shown with test towers and Pacific Ocean in background. Top center: in blockhouse checking results of Centaur test in nearby tower are E. A. Kohr and A. C. Richards, instrumentation technicians, Ed Davis, instrumentation engineer, Adam Lopez, instrumentation technician. Top right: model of PRIME, unmanned re-entry vehicle under development. Lower left: new AC-8 hydrogen peroxide engine system is examined by Ray Deweese, test conductor, Wayne Gardner, instrumentation engineer, Hal Wegener, engineering supervisor. Lower center: Herman Winter instrumentation machinist, forms part in machine shop with Sal Eramo, engine lathe machinist, in background. Lower right: OAO payload fairings are jettisoned in L Tower, falling into nylon net to avoid damage.

Hard-to-Mix Metals Combined In Dynamics 'Shotgun' Device

Fort Worth division research scientists are firing 410 gauge shotgun shells into trapped metal powders in quest of materials for tomorrow's hypersonic air and space craft.

The firing takes place in a high-velocity impact device consisting of a firing pin, breech block, gun barrel, and die, into which powdered metal is poured.

Remote triggering of the firing device sends a small steel projectile—attached to the end of a regular 410 gauge shell—crashing into the powder metal at speeds of up to 2,000 feet a second.

'This terrific force immediately compresses the powder into a solid," explains J. W. Hagemeyer, senior research scientist. "The part requires little or no machining, since it conforms perfectly to the die, and the porous-like powder leaves no voids."

As a starter, Hagemeyer is using steel projectiles from ½ to 1½ inches long and a half inch in diameter. As experiments progress, he hopes to form much larger parts.

"One of the truly significant possibilities of the method," Hagemeyer says, "is that it permits combining of materials that are normally difficult, if not impossible to mix successfully.

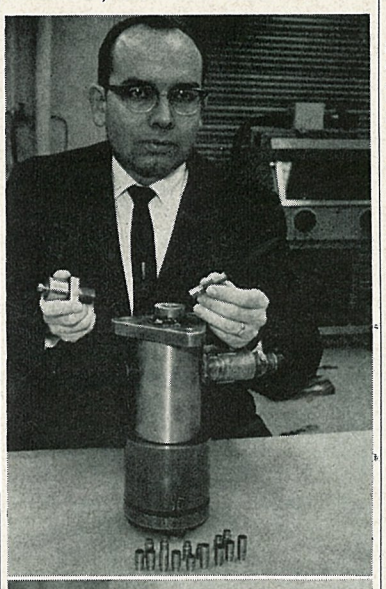
"For example, we've combined aluminum (soft with a low melting point) with tungsten (hard with a high melting point)."

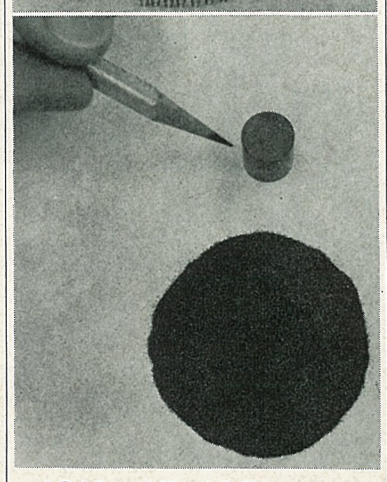
Hagemeyer says metallurgists are busily exploring the possibilities of such composites, seeking a material light and tough enough to withstand very high-speed flight.

In principle, high-velocity impact forming is similar to Dynapak and Dynaform—General Dynamics techniques involving usage of dynamite explosion and compressed air to form parts.

"Velocity is the main difference," Hagemeyer said. "Exploding a shell in a vacuum enables us to create a projectile velocity of up to 2,000 feet a second."

So far, Hagemeyer and associates have worked with common metals such as copper, aluminum, iron, nickel and cobalt. They've also experimented with some of the more exotic metals such as tantalum, titanium and niobium.





LOAD AND LOCK — J. W. Hagemeyer, senior research scientist (top photo), gets ready to insert 410 gauge shell — with steel projectile attached — and firing pin on high-velocity impact device. Projectile is fired into die containing powdered metal. Impact forms a solid. Below, mound of powdered steel in foreground is compressed into solid form immediately upon impact.

Prim Will Address Electronics' Club

D. C. Prim, general manager of Electronics-SD, will report on status of the San Diego operations and review last year's performance at the next meeting of the Electronics Management Club to be held in early February.

George Leesch, club president, urges all members to watch for announcement of definite date and meeting location. Tickets will be sold by departmental representatives.

Unmanned Re-entry Vehicles Undergo Basic Tests at Point Loma Facility

Basic tests for the Air Force's PRIME advanced-technology re-entry vehicle program and major Centaur systems tests are among a variety of test programs under way at Convair division's 37-acre Point Loma Test Site, San Diego.

Four of the unmanned PRIME (precision recovery including maneuvering entry) vehicles are to be launched by Air Force Atlas SLV-3s down the Western Test Range beginning late this year.

The PRIME program tests to be conducted through next September at Point Loma include:

1. Structural tests for the adapter section that will connect the re-entry vehicle to the SLV booster, to be conducted in the 65-foot C Tower.

2. Match-mate tests of the program hardware to be assembled in the 66-foot L Tower.

3. Re-entry vehicle release system tests to be accomplished on an air-bearing test stand.

4. Testing of the jettison system for the fairing that will cover the re-entry vehicle during the SLV-3 launch. This will be done on the 66-foot L Tower.

The unmanned PRIME vehicle, to be built by Martin, is to weigh about 900 pounds, be about 8 feet long and about 4 feet wide across its vertical stabilizer tips.

It is a part of the Air Force's START (spacecraft technology and advanced re-entry tests) program and will provide design data for possible manned vehicles of the future. Vehicles to be used in such advanced programs could provide fast re-entry from almost any orbit with long cross-range capabilities enabling them to land at desired points.

Ninety-five Convair employes are assigned to the Point Loma Test Site, a complex of 13 test towers, two "blockhouses" with electronic test equipment, offices and machine and metal fabrication shops. The site lies along the ocean west of Ft. Rosecrans National Cemetery.

Fred Wallace is site chief, Charles Graser, general foreman for operations, and Robert Hinck and Hal Wegener are engineering supervisors. The lone distaff employe, Dorothea Lang, is department clerk.

Anyone taking a "Cook's tour" of the site would see some of the following:

A full-scale D-Series Centaur vehicle is mounted in the 65-foot K Tower being prepared for bending moment capability tests to determine how much payload it can safely carry.

"Structural strength of the vehicle itself is the main limitation to carrying heavier payloads," Hinck said.

Preparations also are under way for testing the redesigned balanced thrust hydrogen venting system.

In the nearby K Tower test area, a low altitude chamber is being set up to evaluate integrity of a two-section tank made of Inconel 718 coated with microquartz insulation.

The lower section of the Atlas-Centaur AC-8 configuration is in the 35-foot G Tower undergoing tests to determine flow and operational characteristics of its redesigned hydrogen peroxide engine system which provides attitude control and propellant setting for the Centaur vehicle during "coast phase" of flight.

In another Centaur test in the O Tower area, segments of the 219 ring spot welded to an 18-inch-diameter tank are being evaluated for their load carrying capability under cryogenic conditions. Liquid hydrogen is used to cool the tank to about –420 degrees Fahrenheit. Hydraulic rams apply loads.

Structural tests on the Centaur A/B T-O umbilical panel have recently been completed and tests are under way on a bulkhead seal for Centaur at E Tower.

Recently completed at the "Point" also have been blowdown tests and pressure tests for the SLV launcher hold-down and release system.

In the 65-foot D Tower area, insulation material made of silica, sand and aluminum oxide are being exposed to re-entry heat conditions with quartz lamps directed into a small vacuum chamber creating temperatures to 3,000-degrees Fahrenheit at altitude conditions.

Among the more dramatic tests conducted at the 66-foot L Tower are those in which fairings that shield payloads for the various space launch vehicles during liftoff are jettisoned away from a carriage as they are accelerated up the center column of the tower. The fairings fall into a 120-foot diameter nylon net stretched from the outer eight columns so they are undamaged by the fall. The tests for the PRIME program will include such an evaluation.

Many of the tests are recorded on videotape by remotely controlled cameras provided by the motion picture and television section.

One of the capabilities that has distinguished the site is its system for putting together major test jigs from steel wide-flange sections that can be bolted together on a stationary platform in much the same manner as a child builds models from an erector set.

"This alone enables us to cut days or weeks from a test schedule and reduces material costs," Graser said.

People Mobility

Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

JOHN F. TWEED (1952) from Convair to sr. elec. engr., Electronics, San Diego; **RALPH E. KENYON** (1950) from Electronics, San Diego to sr. research engineer, Convair; **WALTER D. HONEYCUTT** (1963) from Fort Worth division to weight engineer, Convair; **ANTHONY P. KRAUSE** (1960) from Convair to cost accounting, Fort Worth; **ABEL SANCHEZ** (1950) from Convair to F-111 contracts administration, Fort Worth; **JAMES VEIT** (1951) from Convair to F-111 program control, Fort Worth; **HERBERT R. JOHNSON** (1963) from Convair to general procurement, Fort Worth; **RICHARD H. HURN** (1961) from Convair to general procurement, Fort Worth; **CLIFTON D. HOLLIS** (1947) from Ardmore to F-111 logistic support, Fort Worth; **HERMAN MUMMA** (1954) from Convair to sr. cost analyst, Electric Boat.

Space Vehicles Shipped For March Launching

Centaur's parking orbit and "two-burn" operational capabilities are to be tested in March when Atlas-Centaur Eight sends a mass model representing the Surveyor spacecraft toward a "simulated moon" in space.

The Atlas 184-D launch vehicle was to be shipped late last week and the Centaur 6-D vehicle and the mass model were to have been shipped Jan. 24, in an Air Force C-133B cargo plane from Miramar Naval Air Station in San Diego to Kennedy Space Center.

Although the mass model bears little physical resemblance to the Surveyor, it carries a Surveyor S-Band transponder and its omnidirectional antenna for use as a beacon in tracking through space.

Richard White of Surveyor integration Dept. 952-3 has served as Convair project engineer for the mass model.

Flight acceptance and composite tests were completed under White's direction early this month at the Kearny Mesa plant and demonstrated compatability of Centaur and the mass model.

Centaur's "two-burn" and "parking orbit" capabilities will allow much more flexible launch schedules and longer "launch windows."

After the Atlas booster and sustainer phases of the AC-8 flight, Centaur main engines are to have a first burn of about 5½ minutes.

Following a 25-minute coast in "parking orbit," the Centaur main engines are scheduled to have their "second burn" of 1 7/10 minutes. The mass model then will be separated from Centaur by release springs between 36 and 37 minutes into flight.

Centaur then will turn itself around and will complete its mission 55 minutes after liftoff by beginning decay of its orbit with burning of retro-thrust propellant.

Insulation panels of Centaur and the nose fairing covering the mass model during liftoff will have been jettisoned during the Atlas sustainer stage of flight.

Centaur's orbit after its retro-maneuver will have a 260,000 nautical mile apogee. The mass model's orbit will have a 500,000 nautical mile apogee and its total orbit period is to be 37 days.

Atlas-Centaur Seven, with a "one-burn" mission, is scheduled to send the Surveyor SC-1 engineering model into a 240,000-mile trajectory toward an actual soft landing on the moon in May.

Other Surveyor engineering models are tentatively scheduled this year in AC-10 and AC-11 flights.

Vandenberg Pad Being Altered For Launch of E and F Missiles

Pad 3 of the 576-A complex at Vandenberg AFB is undergoing major modification to equip it for launch of "antique" Atlas E and F missiles that will be refurbished for new roles in the Air Force Ballistic Systems Division's ABRES (advanced ballistic re-entry systems) test program.

A large number of the Series E and F "silo birds" have been in storage since they were retired from the nation's weapons arsenal and were removed from underground silos in the wheat fields and on the prairies of the plains states.

The launch control system for the pad is being changed to accommodate the all-inertial-guidance systems of the E and F missiles. D series missiles previously launched from Pad 3 had radio controlled guidance. Liquid oxygen storage capacity at the launch pad also is being increased.

Atlas 121-F, the first of the Series F birds to be used in checking out the modified pad for its new ABRES duties, now is undergoing modification at the Kearny Mesa plant. After structural, engine and systems changes have been made, it is to be checked out and delivered to Vandenberg in March. It had been in storage at Air Force Plant 19 since it was manufactured.

L. T. Cheung, program manager, said follow-on contracts are to be negotiated for modification of other E and F Series missiles. R. G. Daly is factory manager for the modification program and Lee Ely is general foreman in the final assembly area.

Parts being used in the 121-F modification are being provided by the Air Force Logistics Command and by Convair.

The ABRES program has enabled the Air Force to test various methods by which intercontinental missiles can get past anti-missile missiles to reach their targets.

Nike target packages launched by Atlas Ds from Vandenberg have been injected into intercept arcs toward Kwajalein atoll in the South Pacific in some of the Nike-Zeus anti-missile program tests for the Army.

The modified Atlas E and F missiles also are to be used in future Nike-Zeus tests.

Rice and Zevin On QC Board

W. F. Rice of Convair Dept. 146-3 has been elected chairman and E. R. Zevin Jr. of Dept. 956-0 vice chairman of the Advisory Council on Quality Control Education. The Council serves as an advisory board to the San Diego City Colleges' quality control and reliability programs.

Both Rice and Zevin are members of the San Diego Chapter of the American Society for Quality Control and Zevin is chairman of the ASQC's Professional Development Committee at national level.

About 400 Convair employes have attended evening classes in the City Colleges' program. During the past 2½ years, Convair personnel have made up 45 per cent of the enrollment.

Eleven courses will be offered in the spring semester beginning next week.

Long Distance Call Procedure Changed

Procedure for placing long distance calls outside California from Convair plants has been changed.

Now, to reach the Convair long distance operator, dial "4" from Kearny Mesa plant, and "84" from Lindbergh Field.

Give the operator the toll control log number, name, city and state being called.

Procedure for long distance calls within California and overseas areas remains the same—"0" from Kearny Mesa plant, and "80" from Lindbergh Field Plant.

Naval Reservists Advised of Openings

Interested General Dynamics Naval reservists are advised of openings for line reserve officers in the Bureau of Naval Weapons Reserve Training Unit 771.

Lt. Cdr. R. J. Reich of Convair Dept. 584-1, recruiting officer of the unit, said that both pay and non-pay billets are available for officers of all designators, preferably junior in rank—recent lieutenant commanders, lieutenants and below. The unit drills one day a month, normally the second Saturday, at the Naval Reserve Training Center on Harbor Drive. Members of the unit may be assigned to mobilization units in BUWEPS and related field activities.

Call Reich at Lindbergh Field ext. 1583 for information.

J. R. Blattenberger Named Controller For Data Products

James R. Blattenberger assumed the position of controller for Stromberg-Carlson's Data Products division in San Diego, effective Jan. 18, Carl V. Shannon, general manager announced.



Blattenberger

Blattenberger comes to S-C from Litton Systems, Inc., where he was senior contract administrator at Guidance and Controls Systems Division, Woodland Hills, Calif., the last three years.

From 1960 to 1963 he served as controller at Aviation Products of Motorola, Inc., Culver City, Calif., and before that had held the post of contracts administrator at Lear, Inc., California Divisions, Santa Monica, Calif.

A native of Pennsylvania, he received a degree in business administration from the University of Pittsburgh. He also has done graduate study at the University of California in Los Angeles.

Bill Howard Leads Delta Spearfishing

Bill Howard of General Atomic bagged the most fish in CRA Delta Divers' spearfishing contest Jan. 16 off Torrey Pines. His eight sheepshead, calico bass, opaleyes weighed 25 lbs.

Larry Blackburn and Rod Johnson had next best catches. George Jonilonis had the biggest abalone caught during the entire abalone season (a 9-pounder).

Next event will be a lobster dive from a boat. Co-commissioner Harry Ruscigno, Kearny Mesa ext. 3240, is taking reservations. Two club teams will compete in the Jan. 30 San Diego Council dive at Del Mar.

Bradshaws Elected To Garden Offices

A husband-wife team, Norma and Robert Bradshaw, won top offices in CRA Garden Club elections Jan. 5. Bradshaw heads the group as new president. His wife is secretary.

Also, for the first time, a teenager was elected. Bill Spann, son of Helen and Kenneth, will serve as vice president.

The club will hold a rose pruning demonstration Saturday, Feb. 5, 8 a.m., at CRA Clubhouse, Kearny Mesa, for all Convair people and friends. Next club meeting will be Feb. 2 in the Floral Bldg., Balboa Park.

Electronics Moves IR Offices at SD

Industrial relations functions of Electronics operation at San Diego have been relocated into the area immediately adjoining the lobby on the first floor of Bldg. 51 at Lindbergh Field plant.

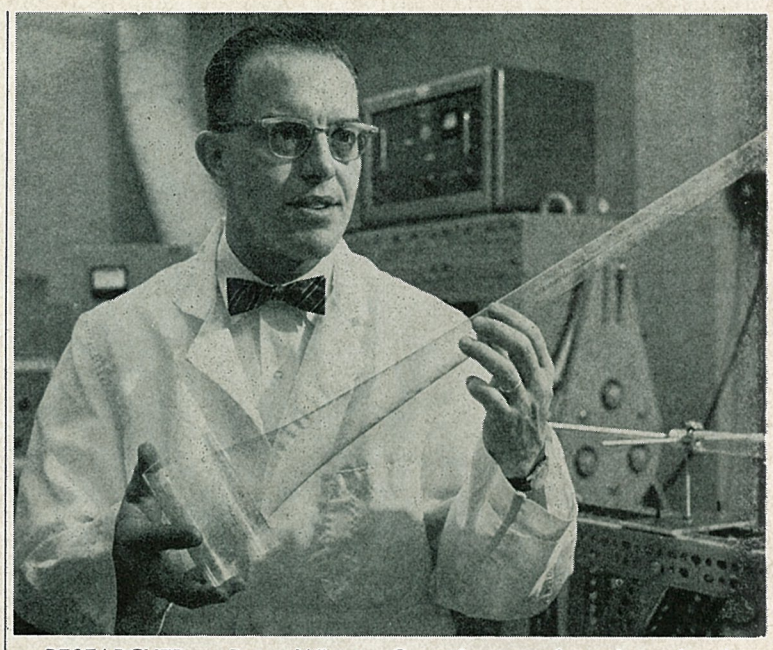
Offices of G. W. Leesch, Electronics-SD manager of industrial relations; Vince Finley, professional employment representative; insurance, employment, and employe services; as well as travel reservations are in the new location. Phone extensions remain the same.

Discount Tickets To Movie Offered

Discount tickets to the motion picture, "The Agony and the Ecstasy," story of the life of Michelangelo, go on sale today for all General Dynamics people.

The special showing for GD movie-goers will be Feb. 6, 2 p.m., at Capri Theatre. Regular $3 loge seats are reduced to $2.40; $2.50 general admission to $2.

Tickets may be purchased until Feb. 3 at CRA Clubhouse, Kearny Mesa; Lindbergh Field and Stromberg-Carlson employe services; and from Joyce, engineering mail room, third floor, Bldg. 51 at Lindbergh Field.



RESEARCHER — Ross Wiant, Convair manufacturing development specialist, displays section of extendable boom of new-type woven screen material under development at Convair for stabilizing satellites. Wiant will describe process at Feb. 10 Material Research Seminar.

Materials Research Seminars Now Scheduled For Thursdays

Time for the weekly one-hour Materials Research Seminars, sponsored by the materials research group and held in space sciences conference room in Bldg. 4 at Kearny Mesa, has been changed to 3:45 p.m. Thursdays.

Jack Christian, a staff scientist in Dept. 572-1, will speak at the seminar tomorrow (Jan. 27) on materials for cryogenic application with emphasis on new developments during the past 1½ years.

The presentation will be a milestone in the seminar program schedule since Christian helped organize the series and spoke on the same subject at the first seminar Nov. 27, 1964.

James Kerr, an engineering metallurgist in Dept. 572-1, will discuss recent developments in high temperature materials with emphasis on super alloys and refractory metals at the Feb. 3 seminar.

In the Feb. 10 session, Ross Wiant, a manufacturing development specialist in Dept. 572-2, will speak on materials and processing for extendable booms. Convair is developing a process for making extendable booms under an NASA research and development contract.

Other seminars next month will be devoted to a presentation on titanium alloy development by Charles Kropp, a senior engineering metallurgist in Dept. 572-1, on Feb. 17 and a presentation on roll diffusion bonded titanium by Charles Alesch, a design specialist in Dept. 572-2, on Feb. 24.

Kropp's presentation will be related to Convair studies under an Air Force contract for development of a superior titanium alloy for cryogenic applications. Alesch's talk will be related to Convair's work in bonding of titanium under a NASA contract.

In seminars earlier this month, Ray Adsit, a senior engineering metallurgist in Dept. 572-1, discussed metal matrix composite materials and Charles Yang, a senior staff scientist in Dept. 572-0, reported on strength analysis of composite materials. Adsit's talk included information on benefits that can be achieved through use of boron fibers with other materials.

Although the seminars are attended primarily by personnel in the materials research group, presentations on subjects of special interest also are attended by design, advance design, structures, stress, weights and production personnel.

Most of the presentations are given by engineers and scientists from the materials research group. At times during the past year, however, guest speakers have covered such subjects as patent procedures and space boosters.

Christian said the seminars help keep the materials research group personnel knowledgeable of new developments in fields outside their own specific area of endeavor. "Of course, new development in one field may have eventual application in another," he said.

Requests For Tuition Refunds Due Three Weeks After Class

Convair employes going back to school for job-related courses must submit their requests for tuition refunds to educational services no later than three weeks after the starting date of classes.

Tuition refunds are given employes for satisfactory completion of professional or technical courses which are related to the job or considered of benefit to the company. The studies must be done at accredited educational institutions.

Accredited schools in the San Diego area include California Western University, San Diego State College, University of California Extension, University of San Diego, San Diego City College, and local junior colleges.

Refunds are limited to $150 a calendar year and cover tuition only. Books and other supplies and fees can not be included.

Requests for tuition refunds (Form A346) must bear the signature of the employe's supervisor, certifying that the courses are related to the employe's job or are of benefit to the Company. Upon completion of courses, a copy of an official school grade report must be submitted to educational services for authorization of tuition payment. Payment is included in the employe's regular paycheck.

Students must be employes of the division at the start of the course and at the time the refund is paid.

Mgt. Club Will Meet For Spaghetti Meal

Convair Management Club members will gather tomorrow evening (Jan. 27) at Balboa Park Club for a spaghetti dinner.

"Tap time" starts at 5:30 p.m.; dinner at 6:30. Price for members is $1.50 and $2 for non-members.

E. L. Shaner, author of "The Environmental Theory of Management," will be featured speaker.

PHONE DIRECTORY DUE OUT MID-FEB.

Convair's telephone directory is being revised with a new directory to be issued in mid-February. Supervisors in each department are responsible for updating information and correct listing of salaried personnel.



HONORED — A. B. Oberg (second from right) holds plaque presented for long years of service on Convair Lindbergh Field plant's Joint Apprenticeship Committee. Oberg, assistant foreman in model shop and management representative on group since 1948, resigned this month. Other members, from left (front row), are L. K. Thornbrugh, Dept. 031, IAM representative; Wayne Turner, training specialist and committee chairman; Oberg; L. F. Kruse, Electronics machine shop foreman. In back row, from left, are John F. Young, consultant with California State Division of Apprentice Standards; Fred De Greef, Dept. 401, and M. E. Long, Dept. 015, both IAM reps; Walter Coyle, apprentice representative.

Dynamics Jamboree Set For Saturday

Convair Square Dancers will host Pomona's Convairiety Steppers at the annual all-General Dynamics Jamboree Saturday (Jan. 29) in the CRA Clubhouse, Kearny Mesa.

PRA Co-commissioners Chet Wheeless and Clyde Perry will head the Pomona contingent. CRA Commissioner Marty Stutz said a buffet dinner will be served at 7 p.m.

Riders Ride Despite Cold and Windy Day

A field of 46 horsemen braved a cold, windy day Jan. 16 to compete in 18 events in CRA Riding Club's fun show and gymkhana at the CRA horse ring.

Jan Kreis, daughter of Boyd Spencley, Dept. 963-4, and Roy Gibbens from Mountain View ranch tied for overall high points.

In the adult division, Clyde Donahoo (Dept. 142-2), club vice president, won blue ribbons in both potato race and water race events. Judy Watson, club secretary, bested other adults in equitation classes.

Sam Special (Dept. 759-0) and Conrad Nash proved their stamina by working throughout the day as part of the ring crew. Others assisting were Steve Berry, Gayle Dvoracek, Clyde Donahoo, Bill Lucas, Al Maillet, Boyd Spencley. Antoinette Spencley, Scotty Payne, and Jane Nash manned the entry booth and Adelaine Donahoo thawed contestants with hot coffee.

Dick Watkins Spends Weekends at Football

Dick Watkins, Convair man based at Eastern Test Range in guidance control of Centaur launch operations, assumes a more strenuous role on weekends as he switches from the launch pad to the gridiron.

A defensive end the last four years with the Jacksonville Robins in the Southern Professional Football League, he has helped his team to two championships.

MODELS ARRANGED FOR LENS FANS

Convair shutter bugs will have attractive subjects to "shoot" at the Feb. 6 meeting, 7:30 p.m., Photo Arts Bldg., Balboa Park. Two beauteous models will be on hand to pose for CRA photographers. Everyone is reminded to bring cameras, tripods, plenty of film.

GRIJALVA ROLLS SERIES OF 705

Pete Grijalva of Convair Dept. 818-1 attained a goal of some 30 years standing this month when he rolled a 705 series in the 925-Classic at Trophy Lanes in National City. This was Grijalva's first 700 series in 30 years of bowling.

Skaters Slate Winter Jaunt

CRA Ice Skating Club is accepting reservations now on a first-come basis for its 11th annual Winter Weekend at Big Bear Lake, Feb. 18-20.

Attendance will be limited to the first 100 reservations, said Commissioner Bud Davies.

Entire facilities of Wawona Lodge, including 10 rooms with private bath for two to five persons, and 18 housekeeping cabins for family groups of two to 12, have been reserved for the outing.

Gil Hutter, Prophet Co. manager of the Kearny Mesa cafeteria, will cater three meals — Saturday and Sunday breakfasts and Saturday night dinner. Volunteers will take over the serving and kitchen chores.

Cost of two nights' lodging and three meals is $12 per person for adults and $6 for children under 8 years.

Application forms are available at Kearny Mesa and Lindbergh Field employe services. Reservations will be accepted at CRA Clubhouse, Kearny Mesa; Lindbergh Field employe services; or by mail.

For further information contact Joan Kosen, 274-5227, or Davies at Kearny Mesa ext. 2751.

Toastmasters Slate Speaking Sessions

Convair Toastmasters Club 3745 has scheduled two sessions on the practical uses of parliamentary procedures today (Jan. 26) and Feb. 9 in the CRA Clubhouse, Kearny Mesa.

Everyone interested is invited to attend at regular meeting time, 4:15 p.m. Jim DeShazo, club educational vice president, will give information through ext. 2056, Kearny Mesa.

The Convair speech club also will hold its quarterly awards dinner next Wednesday (Feb. 2), 7 p.m., at the Padre Trail Inn, 4200 Taylor St. For reservations call Don Menard, exts. 2895/1521, Kearny Mesa, by Jan 31.

McCullough Leader In Fall Bridge Play

H. R. McCullough won CRA Bridge Club's fall bridge series with .68 fractional master points for six events. Mitzi Rustad was second and Cecil McCullough, third.

Winners in Nov. 19 play leading to the championship were Joan Sherely and Dianne Sleishman, north-south; and Ed Lou and Francys Darr, east-west. Winners of the final event on Dec. 17 were Billie and Wayne Evans, north-south; Mary McGee and Jim Dunning, east-west.

A new winter series starts this month with scoring to be based on percentages instead of fractional points.

Mgt. Club Backs Bowling Classic

Convair Management Club will sponsor a singles Bowling Classic this weekend and next, Jan. 29-30 and Feb. 5-6, at four San Diego area bowling establishments to determine bowlers who will represent the club in the California State Tournament.

Contestants will bowl Jan. 29 at Clairemont Bowl; Jan. 30 at Parkway Bowl; Feb. 5, location to be announced; Feb. 6 at Lindo Lanes. Top 20 finalists will bowl a 10-game roll-off Feb. 12-13 at Lindo Lanes. Five emerging with high scores will get all expenses paid to the state tourney.

Entries will be accepted until the first squad starts at noon, Jan. 29, said Forest Erwin, chairman. Entry fee is $5 a person plus 50 cents per line.

Individual prizes will be awarded for each squad in addition to overall cash and trophy awards.

Starting times will be at noon and 2:30 p.m. each day.

Eligibility is limited to bowlers presently bowling in Management Club-sponsored leagues and present and former club members now holding ABC membership cards.

Entry forms are to be mailed to Erwin, zone 403-20, Kearny Mesa plant. He may be reached at ext. 2884, Kearny Mesa, or home phone, 444-0042, for information.

CRA Flyers Elect Chastain President

Lee Chastain of Dept. 951-7 was elected president of the CRA flying group, Bonair Flyers, at the club's Jan. 4 election.

New vice president and program chairman is Lambert Taylor (Dept. 146-1); recording secretary, Carolyn Buman (Dept. 585-1); corresponding secretary, Nancy Vincon (Dept. 951-9); and treasurer, Jerry Hillaker (Dept. 958-6).

Next meeting will be Feb. 1, 7:30 p.m., Room C in CRA Clubhouse where members will hear Lt. (j.g.) John E. Oren of the U.S. Coast Guard talk about precautions and emergency procedures employed by Coast Guard in flights over water.

Final plans also will be made for a club fly-in to Palm Desert Sunday (Feb. 6).

Commissioner Glen Hemphill said that flyers will gather at the Desert Air Motel for a 10:30 a.m. breakfast, then spend the rest of the day swimming or flying over the desert area, as they like. Reservations should be called in by Feb. 1 to Hemphill, home phone 465-4672.

Women's Golf Club Plays at Lakeside

Jean Mishall of General Atomic and Vi Gilbert of Convair won individual CRA trophies for low scores in Flights A and B at the Jan. 8 links tourney staged by GD Women's Golf Club. Seventeen ladies played the Lakeside course.

Ora Carpenter won a $6 gift certificate as Flight A runner-up. Ann Gagnon, third, received a $4 certificate.

Other prize winners in Flight B were Florence Kell, second, $6 certificate; and Betty Liddell, third, $4 certificate.

Next month's match will be Feb. 12 at Mission Bay Golf Course. Tee-off time is 8 a.m.

Mexico Christmas Holiday a Success

Twenty-seven General Dynamics travelers returned home Jan. 2 from their holiday trip to Mexico, second to be sponsored by the Convair Management Club.

Convair's Jim Hardison, who conducts the year-end tours in addition to annual summer trips for General Dynamics, guided the group throughout the two weeks sightseeing in Mexico. Stops were made at Guadalajara, Mexico City, Taxco, and Cuernavaca. Christmas was observed in Acapulco in 85-degree summer weather and New Year's welcomed on the train en route to Mexicali.

Disneyland Under Lease Mar. 26 For General Dynamics Families

Disneyland has been leased for an exclusive five-hour party for General Dynamics employes and their families, relatives and friends beginning at 8 p.m. Saturday, March 26.

More than 10,000 persons are expected to attend the second annual Disneyland party to be sponsored by the Convair Management Club. Tickets at $3.75 each are to be sold beginning next month by club boosters and at all CRA outlets.

All tickets must be purchased prior to the event since none will be sold at the Disneyland gate.

Admission charge will cover all Disneyland attractions with as many rides on each as desired during the 8 p.m. to 1 a.m. time period. Regular Disneyland food concessions will be open with food, drink and special purchases additional.

Charter buses will operate at about $2.50 per person, round trip. They will begin loading at 5:30 p.m. at the flagpole in front of Bldg. 2 at Kearny Mesa and will leave at 6 p.m.

Arrangements for the family party are being made by a committee headed by Bob Emerson, Dept. 403.

Emerson said 7,500 employes, family members and guests attended the first Disneyland party last year, including 500 from General Atomic and 500 from Vandenberg AFB.

CRA Calendar

(For information on CRA activities call CRA Headquarters, Kearny Mesa, ext. 1111. Deadline for copy for the next issue of GD/NEWS is noon, Feb. 2. Call ext. 3322, Kearny Mesa, or ext. 1071, Lindbergh Field.)

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BADMINTON—Play Mondays, 7-10 p.m., Federal Bldg., Balboa Park.

BASKETBALL — Shop league play Wednesday evenings and Saturday mornings, Muni Gym, Balboa Park.

BONAIR FLYERS — Meeting Feb. 1, 7:30 p.m., CRA Clubhouse. Fly-in to Palm Desert Feb. 6.

BRIDGE — Play each Friday evening, 7:30 p.m., CRA Clubhouse. Monthly Master Point night Feb. 11.

CAMERA CLUB—Model shoot Feb. 6, 7:30 p.m., Photo Arts Bldg., Balboa Park.

CERAMICS—Instruction Tues., Wed., Thurs. evenings, 7:30-10:30 p.m.; Wed. morning, 10 a.m.-1 p.m., CRA Clubhouse.

CHESS—Play each Wednesday, 7:30 p.m., CRA Clubhouse.

FENCING — Workouts and instruction Fridays, 7:30-10:30 p.m., YWCA, 10th & C Sts.

GARDEN CLUB — Meeting Feb. 2, 7:30 p.m., Floral Bldg., Balboa Park. Rose pruning demonstration Feb. 5, 8 a.m., CRA Clubhouse.

ICE SKATING — Reservations open for annual Winter Weekend, Feb. 18-20, Big Bear Lake. Call Bud Davies, Kearny Mesa ext. 2751. GD skate night Thursdays, 6:15-7:45 p.m., Mission Valley Ice Arena.

MOVIES — Reduced prices for GD people at State Theatre, Euclid and El Cajon Blvd. General admission: adults, $1; children, 35c.

RADIO CLUB — Meeting Feb. 3, 7:30 p.m., CRA Clubhouse.

RIDING CLUB — Meeting Feb. 9, 7:30 p.m., CRA Clubhouse.

SCULPTURE — Workshop sessions Mondays, 7:30-10:30 p.m., CRA Clubhouse.

SKI CLUB — Meeting Feb. 1, 8 p.m. Catamaran Hotel. Ski trips every weekend to Mammoth and Big Bear. Call Joe Harris, 284-0278.

SPORTS CAR CLUB — Photorama-7 fun rally Sunday, Jan. 30, 10 a.m., Kearny Mesa plant parking lot. Meeting Feb. 9, 7:30 p.m., Convair executive dining room, Pacific Hwy.

TOASTMASTERS — Meetings each Wednesday, 4:15 p.m., CRA Clubhouse. Call D. R. Nash, ext. 2059, or Jim DeShazo, ext. 2056, both Kearny Mesa.

TOASTMISTRESSES — Serra Mesa Toastmistresses meet first and third Mondays, 7:30 p.m., CRA Clubhouse.

TRAILERS — CRA Travelers meeting Feb. 1, 7:30 p.m., CRA Clubhouse.

Bob Peterson Golf Winner

Bob Peterson of Stromberg-Carlson topped S-C and Electronics Men's Golf Club championships to represent the group in the pro-amateur matches of this month's San Diego PGA Open Golf Tournament.

Peterson's net 357 scored in the final nine club tourneys of 1965 gave him first place in the club's Flight A championships.

Runners-up, tied with 363s, were Bob Kees and Jack Walsh.

Jack Webb led Flight B with a total net score of 353. Fred Maus was in second spot with 360, and Fred Nuzzo, third, 374.

Around 45 S-C and Electronics golfers competed in the club matches which determined the flight championships, said Nuzzo, club president. Last match was played over Coronado course just before the Christmas holidays.

In the first meet of the year, Jan. 8 at Cottonwood course, Jim Devus chalked up a hole-in-one on the par 3, 220-yd. 9th hole.

Gordon Hayes had low net, 65, in Flight A, and Joe King and Don Jackson both scored 71s for a first-place tie in Flight B.

Next match will be Feb. 5 at Balboa municipal golf course. Tee-off time is 9:59 a.m.

Adventurers Helping In Mountaineer Class

Several members of CRA Adventurers are assisting with instruction of the current mountaineering course which started this week under auspices of the San Diego Chapter of the Sierra Club.

They include Jim Moore, Ray Madden, Tim Johnson, Kay and Joe Quijada, all Sierra Club members.

Outdoor enthusiasts may register at the session next Tuesday (Feb. 1), 7:30-9:30 p.m. in the Balboa Park Conference Bldg.

Photos to Guide Sports Drivers

Keen observation will set the pace in Convair Sports Car Club's fun rally, Photorama-7, this Sunday (Jan. 30) when contestants will be guided over the course by photographs instead of written instructions.

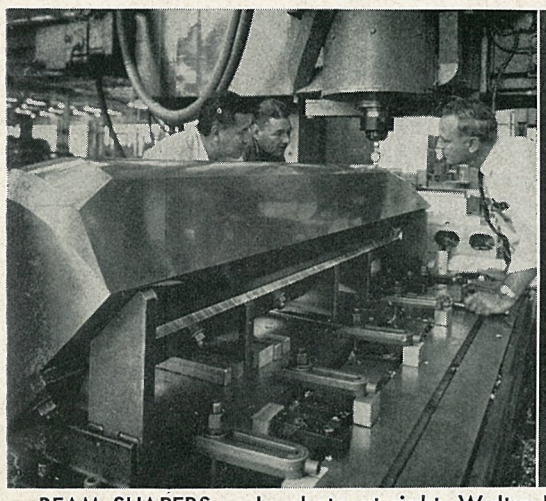
The rally, open to all sports car buffs regardless of rally experience, is strictly "seat of the pants." No navigational devices, except timepieces, are allowed. Detailed instructions will be distributed at the starting line.

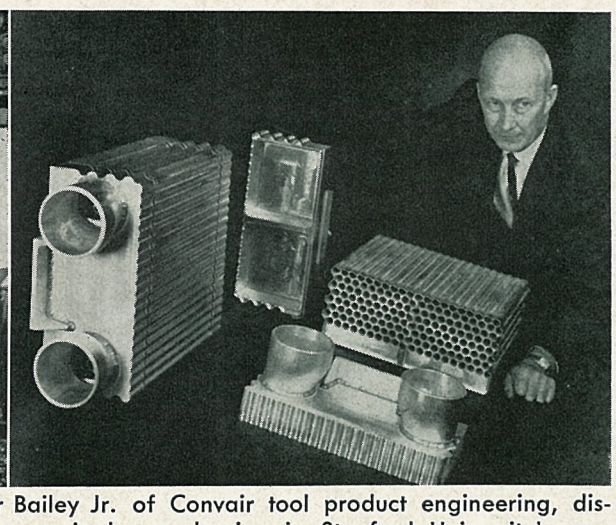
Cars will leave from the Convair Kearny Mesa parking lot near the Atlas missile with first car out at 10:01 a.m. Others will follow at one-minute intervals. All contestants should check in at least 30 minutes before starting times.

The course will take cars over 100 miles of scenic San Diego County, winding up at Torrey Pines Inn off Pacific Hwy.

Pre-entries closed Jan. 23, but post-entries may be made the day of the event. Fee is $3.50.

For further information contact either Bruce Bertsch, ext. 2135, or Marvin Jensen, rally master, ext. 1361, both Kearny Mesa plant.





BEAM SHAPERS — In photo at right, Walter Bailey Jr. of Convair tool product engineering, displays collimators manufactured by Convair for use in beam shaping in Stanford University's new two-mile-long linear accelerator. Completed assembly is at left with center and end sections shown before assembly. In photo at left, Stan Penziul, Lindbergh Field machine shop (Dept. 015) assistant foreman (right), Juan Meza of inspection (Dept. 149-2) and L. W. Kirkendall, milling machine operator, check dimensions of steel section of magnet core assembly being milled on Giddings & Lewis numerical controlled milling machine for Stanford project.

Precision Machining Required In Task For Stanford Project

Ninety-three high-precision collimator module assemblies built at Convair division's Kearny Mesa plant have been delivered to Stanford University for use in the two-mile-long, 114-million-dollar linear accelerator being built in San Mateo County by the university under contract from the Atomic Energy Commission.

The collimators, manufactured in four different configurations and delivered this month ahead of schedule, will be used to shape 10 to 20 billion electron volt beams as they near the end of the underground 10,000-foot accelerator housing at about the speed of light.

Completion of the giant accelerator and its allied facilities both above and below ground is scheduled this year with its "shakedown" in 1967.

Under a separate contract, Convair also is building quadrupole magnet core assemblies for an underground beam switchyard at the end of the accelerator for use in deflecting the powerful beam energy into one of several "target areas" 660 feet from the switchyard.

Collimator center sections were fashioned from solid forged aluminum billets, Walter Bailey Jr. of Dept. 403-2, program manager, said.

Gun drilling techniques were adapted for the first time to a Milwaukee-Matic numerical controlled milling machine in the factory at Kearny Mesa for precision drilling of 160 holes through each of the billets. Oil was pumped through the center of the drill bit for cooling the cutting surface and flushing shavings.

Use of the electron beam welding machine at Kearny Mesa for part of the welding on the collimators marked its first use in routine quantity production. Electron beam welding was done by Bill Roden of manufacturing research and development Dept. 491-0 and G. D. Lundquist of Dept. 759-0. Tungsten gas welding was done by R. F. Junghans of Dept. 759-0.

Bob Bruce was production engineer. Production machine shop Dept. 731 personnel under V. E. Hoagland, assistant foreman, and tool and die shop Dept. 452 personnel under Marty Stutz and E. B. Stevens played key roles. L. Carvey Jr. of Dept. 759-0 was metalfitter and Jack Ridley of Dept. 733 handled metal cleaning.

Bailey said the collimators had to be made for high reliability because they will become radioactive in use and can not be handled following installation. Twenty per cent of the order, however, is being retained for future replacement needs, with replacement to be accomplished through a remote control manipulation system.

The seven quadrupole magnet core assemblies, being built in three different configurations by Convair for use in the beam switchyard, weigh from 5 to 18 tons each.

Each assembly consists of four magnet pole details and four yokes. Numerical controlled milling machines at Lindbergh Field are being used for machining of hyperbolic contours on each of the magnet pole details with milling done by Dept. 015 (machine shop) personnel. Rough machining, finish grinding, hole drilling, final assembly, and painting is done at Kearny Mesa.

Forest Erwin, program engineer, said the first of the assemblies, weighing 31,980 pounds, was delivered to Stanford Jan. 14. Second and third were due to be shipped this weekend and the remainder scheduled for delivery by the end of March.

Ralph C. Monson of Dept. 450-0 was in charge of machining operations for the core assemblies. Dick Schweitzer of Dept. 400-1 did programming for the numerical controlled milling machines, and O. C. Banke of Dept. 015-0 was in charge of milling operations. J. J. Swarts of Dept. 149-0 was responsible for inspection of hyperbolic curves.

Numerical controlled machined contour dimensions are precisely checked by Convair inspection by a new technique, using for the first time a numerical control inspection tape at a considerable reduction in time over conventional inspection methods, said Swarts.

M. S. Payne of Dept. 451-0 served as a coordinator for the entire program, and Bill Brotherton of Dept. 143-1 was quality control coordinator.

Seminar on Patents Scheduled at State

A seminar dealing with patents for business executives, scientists, engineers, and inventors has been scheduled during the spring semester at San Diego State College.

The workshop will meet on six Mondays starting Feb. 7 from 7 to 9 p.m. in the business administration building. Registration should be made with the SD State coordinator of extended services. A fee of $50 is charged.

Blakey Heads NCMA Group

C. W. Blakey, Convair director of government contracts and president of the San Diego Chapter of National Contract Management Association, will head a contingent of near a dozen Convair members attending next week's NCMA Educational Conference dealing with changes and termination to multiple incentive contracts.

Attendees at the Feb. 4 conference at the Los Angeles Airport Marina Hotel will witness negotiation of several changes and partial termination of a "mock" multiple incentive contract.

Industry and government leaders will participate in negotiations and demonstrate the underlying reasoning behind their positions.

Brig. Gen. Joseph E. Bleymaier, USAF, commander of the Western Test Range, Vandenberg AFB, will head the moderating panel. Other members are D. J. Harnett, Northrop Corp. director of contracts and pricing; H. W. Neffner, Boeing Co. vice president - government contracts; Col. H. A. Budd, chief procurement and production, AF Ballistic Systems Division.

Government team is composed of Col. Donald J. Yockey, chief procurement and production, AF Space Systems Division; D. E. Moore, deputy director - quality assurance, Hdqtrs. CMD, Los Angeles AFS; D. L. Bagozzi, assistant chief pricing division, procurement and production, AF Space Systems Division.

Members of the industry team are Clark G. Adams, North American Aviation, Los Angeles division, director of contracts and pricing; H. L. O'Brien, TRW Systems Inc., Mechanics Division manager of contracts; R. J. Hurley, Hughes Tool Co. manager of contracts administration; J. A. O'Leary, Douglas Aircraft, corporate manager - subcontractor performance evaluation and management.

Data Products Consolidation At Hancock St. Now Complete

Stromberg-Carlson Data Products division this month completed consolidation of all its San Diego operations into its facility at 1895 Hancock St.

Last in a series of moves transferring all S-C personnel from Bldg. 51 at Convair Lindbergh Field plant was made the middle of this month when 40 accounting people took up new quarters in the Hancock St. building.

S-C manager's office, marketing, purchasing, and material functions were first to make the exodus in November, followed by industrial relations in mid-December. Altogether, 100 S-C people have been moved from Bldg. 51's first and third floors, leased from Convair division during the last two years, said R. E. Dieter, S-C plant engineer.

In addition, Bldg. 8 at Lindbergh Field plant, which had been used for storage, has been released and all material moved to the S-C warehouse on Noell St. Maintenance people have been transferred from that location to the Hancock St. building.

The Hancock St. plant has been undergoing a major renovation to accommodate the functions moving in, with total occupancy now at about 350 people. Final finishing work will take another couple of months. Production has been maintained on schedule throughout the remodeling, Dieter said.

In the relocation of functions, industrial relations, accounting, purchasing, and material functions are in new offices on the first floor with production and assembly taking up the main area. Engineering personnel are on the second floor; office of Carl V. Shannon, general manager, marketing and customer support on the third floor. Engineering laboratories are located in the basement.

New System Devised For Uncoiling Steel

Personnel in the Convair division plant at Kearny Mesa no longer have to wrestle with metal clamps when they need to cut a piece from a tightly wound 2,000 lb. coil of stainless steel. They just put to work a new Convair-designed and built machine.

In fact, machines in the new coil handling system now are used in "managing" the coils from the time they enter the factory until the last piece is used.

Where shear operators formerly had to carefully maneuver clamps around one end of the coil to keep it from "going wild," they now use a hydraulic machine in obtaining the desired amount from rolls at 16 different dispensing stations.

When the coil, secured in safety bands, is first brought into the factory on a forklift, it is set into a turning device where it is manually cranked into a horizontal position. A wood mandrel or spindle, with a steel center shaft, is inserted. Hardwood wedges are diven into notches in the spindle to hold it tightly in place. The coil then is moved by forklift into its dispensing station where it can revolve on the center shaft.

When a piece of stainless steel is needed, a small pneumatic machine is wheeled into place and attached to the dispensing station frame. An air cylinder is activated, applying force to two rubber rollers, forcing them tightly against the coil. Fabric safety straps then can be removed.

The shear operator then can use a foot treadle to drive the rubber rollers and move the coil forward or in reverse.

The sheet can be rolled forward off the roll onto a table and cut at the desired point with power shears. Metal unrolled but not cut is moved in reverse until it again is back in the roll and the safety straps again applied.

The pneumatic machine then can be disengaged and used at one of the other dispensing stations, as needed.

Robert E. Bruce, a tool development engineer for Dept. 403-3, said the entire coil handling system was built for under $7,500 due to "value engineering" by the tool projects, tool design, and tool manufacturing departments.

Bruce and George Vollmer Jr. of tool design Dept. 420-9 created the initial design concept. It was further refined by M. S. Payne of tool manufacturing Dept. 451-0 to reduce cost.

Manufacturing was done under the direction of John Pasich of jigs and fixtures, Dept. 451-0.

Bruce said the new system is important from a safety standpoint as well as in streamlining the handling of the stainless steel sheet metal coils.

"We've had lost-time accidents from serious cuts in the past. The new method eliminates the risk," he said.

Data Products Sale Of Surplus Success

Stromberg-Carlson bargain hunters swept the "counters" clean in less than two hours at the first surplus materials sale staged at the Data Products division in San Diego.

Around 100 were pressing against the fence two hours before gates to the Hancock St. yard were swung open at 1 p.m. on sales day, Jan. 16, said Roy Dieter, S-C plant engineer. By 2:45 p.m. the yard had been cleared of everything but a table and a few chairs.

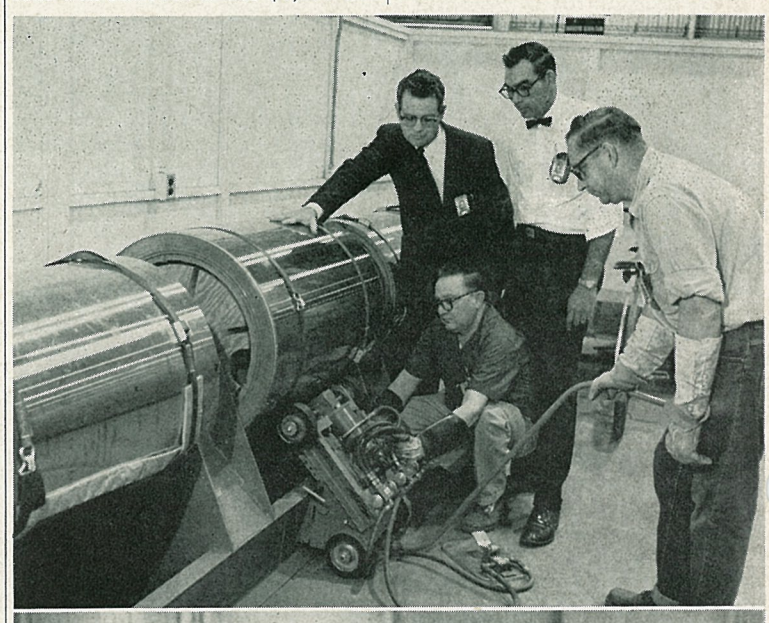
Over $1,100 was realized from the one-shot sale of surplus office equipment left over after the recent S-C move from Bldg. 51 to the Hancock St. facility.

Convair Son Chosen For Music Honors

Larry Laffoon, 20, son of Mary Laffoon of Convair Dept. 423, has been selected to perform with the outstanding string ensemble, Clebanoff Strings, now on a two-months tour of the United States.

Laffoon, who plays the viola, was one of 16 chosen from hundreds auditioning.

Three years ago Laffoon won the National Congress String Award scholarship for instruction at Michigan State.





SOMETHING NEW — Below, Convair's R. E. Morrill Jr. and J. W. Hart demonstrate old method of metal clamps used to control coil of stainless steel when removing a section. Above, they operate new pneumatic machine as Robert Bruce, tool development engineer, and James Schiller, Dept. 732-0 assistant foreman, watch.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 19, No. 3 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, February 9, 1966

Savings Plan Participation Over 80 Pct.

More than 80 per cent of Convair's eligible employes have taken advantage of General Dynamics' Savings and Stock Investment Plan during initial sign-up periods.

The Plan, under which General Dynamics contributes 50 cents for each $1 saved by the employe, went into effect Oct. 1 for non-represented salaried personnel and Jan. 1 for hourly employes and salaried employes represented by a labor union.

Eighty-six per cent (or 6,259 of 7,274 eligible hourly employes) signed up for the Plan during the sign-up period the latter part of December. Seventy-two per cent (or 3,989 of 5,378 eligible salaried personnel) enrolled during their sign-up period.

Employes must have one year of continuous service with the Company to be eligible for the Plan. Those not now eligible, but who will complete their first year by March 31, are being sent a prospectus, Plan booklet and application form now, through department channels, so that they may join as of April 1, if they wish.

However, all are reminded that application forms must be returned to employe services by Feb. 28, in order to become effective with the quarter beginning April

(Continued on Page 2)



WELL DONE! — Milton Silveira (second from left), Little Joe II program manager for NASA, hands J. H. Famme, Convair vice president of aircraft programs (before retirement this month) letter of commendation lauding Convair on successful completion of Little Joe II launch vehicle program. At far left is J. B. Hurt who directed Little Joe II program for Convair. Don Gerke, NASA's Little Joe II assistant program manager, stands at far right.

Little Joe Launch 'Unqualified Success'

A Convair-built Little Joe II launch vehicle successfully boosted a production-type Apollo spacecraft toward an altitude of 78,000 ft. last month in the final flight test to proof the escape system for manned flights to the moon.

★ ★ ★

The early morning launch Jan. 20 at 7:17 (PST) was an "unqualified success," J. B. Hurt, Convair's Little Joe II program manager, reported from White Sands Missile Range, N.M. Hurt, R. K. Jepperson of Little Joe II design engineering and W. L. Johnston, Convair reliability control, joined the Convair launch operations crew at White Sands to witness the test conducted by NASA's Manned Spacecraft Center, Houston, Texas.

The sub-orbital mission, fourth using a Little Joe II, demonstrated the satisfactory performance of the Apollo spacecraft and launch escape subsystem while tumbling.

Little Joe II was speeding upward at Mach 2.5 when the escape system pulled the spacecraft clear of the launch vehicle at 61,000 ft. The spacecraft zoomed on to its peak altitude of 78,000 ft. before it began its descent to earth, lowered by drogue parachutes to 8,000 ft. above the range and then by three main parachutes, each nearly 84 ft. in diameter. The spacecraft landed a little more than 30 miles uprange from the launching site, just 60 yds. from a recovery crew. Little Joe II itself landed whole, but flattened, on its base, just as it did, nose first, after the first launch August, 1963.

E. M. Fields, NASA operations director for the test, was quoted as saying, "Preliminary indications show that the test was highly successful. The launch escape system is now considered man-rated and production designs have been confirmed."

For the first time, Little Joe II fired its motors in two stages. Two Algol motors, augmented by five Recruit motors, propelled the vehicle for the first 44 seconds, then burned out. The remaining two Algol motors ignited at 37 seconds and powered the vehicle to the test altitude.

The test was originally scheduled for early December but postponed when electronic component problems were encountered. After minor redesign and retesting to correct the trouble areas, the test

(Continued on Page 2)

Well Done! Little Joe

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
Houston, Texas

Mr. Jack Hurt,
Convair Division,
General Dynamics.

Dear Jack:

The successful launch of Little Joe II vehicle 12-51-3 from White Sands Missile Range on January 20, 1966, completed the demonstration flight qualification program of the Apollo spacecraft launch escape vehicle. This launch also concluded the present NASA requirements for the Little Joe II launch vehicle.

The Little Joe II program has been a successful program which provided an inexpensive and reliable vehicle delivered on time. The success of the program was a result of the capabilities and hard-work of you and your people. Many times difficult requirements were placed on your organization but these requirements were always accomplished. I had an opportunity to personally witness some of the maximum efforts required from your people and still remain impressed at their performance.

The General Dynamics/Convair team can be proud of the Little Joe II program and their performance in supporting the Apollo program task of landing a man on the moon.

Sincerely,
Milton A. Silveira
Little Joe II Program Manager

Service Center Moving Ahead; Schedule-Keeping Emphasized

Convair Service Center, General Dynamics' repair, overhaul and modification facility located at San Diego, went into the second half of its first year of existence recently with eyes aimed at boosting future business.

Current workload involves the Convair 600 conversions and refurbishing of military aircraft, chiefly F-102s.

"We are vigorously looking for new business," Jack Bowers, Convair general manager, who exercises Corporate cognizance over the Center, said.

"At the same time, however, our prime concern is in meeting our customers' delivery schedules. We must bend every effort to this end. Our success in schedule-meeting has a strong bearing upon our success in acquiring additional business."

Up to the end of last month the Service Center had modified and delivered two Convair 640s (340/440 version) to Caribbean Atlantic Airlines. First aircraft left San Diego Nov. 19 and second on Jan. 15. In addition, a Convair 440 was prepared to meet Caribair FAA requirements and was flown to San Juan, Puerto Rico, Jan. 27. Glen M. Barker, captain, was at the controls with W. J. Martin, co-pilot, and Jack Fogleman, flight engineer. Dudley Digges, director of commercial contracts, accompanied the flight to finalize transaction at Caribair's home base.

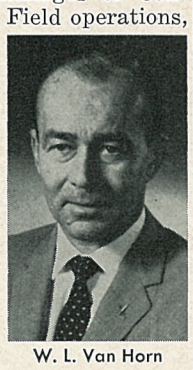
Other recent deliveries include two Convair 640s to Hawaiian Airlines with first delivery on Dec. 10 and second delivery last week. A Convair 600 (240 ver-

(Continued on Page 2)

Disneyland Ticket Sale Begins—Page 6

Van Horn to Manage LF Plant; Famme Retires From Convair

Appointment of William L. Van Horn as plant manager of Convair's Lindbergh Field operations, and retirement of Joseph H. Famme, vice president of aircraft programs, after 30 years with Convair, were announced last month by Jack L. Bowers, Convair general manager.



W. L. Van Horn

Accepting Famme's decision "with deep regret," Bowers added:

"I want to express appreciation on behalf of the entire Corporation for the significant contributions he has made to a number of important programs during his Convair career."

Van Horn, who recently had been serving as program director for the Convair 600/640 aircraft programs, will be responsible for the success of all programs primarily based at the Lindbergh Field plant.

He previously was works manager at the Kearny Mesa plant. He headed the Atlas weapons system during its developmental phase.

Van Horn joined Convair in 1950 and, after leaving briefly, returned to the company at Fort Worth. He joined the then Astronautics division in 1956 as project administrator in long range planning and became department manager two years later.

He attended Pomona Junior College and the University of Washington and once was employed two years with the U. S. Army Corps of Engineers in Alaska and two years with Douglas Aircraft Co. in Ethiopia.

Lutz Appointed To Mkt. Post

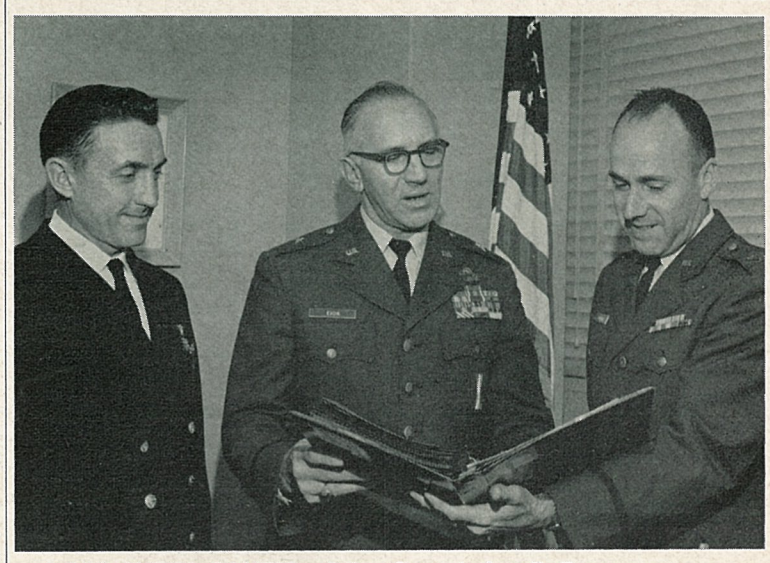
Robert J. Lutz, since 1962 a member of the staff of E. H. Heinemann, Corporate vice president-program development at New York, has been appointed director of market analysis and planning for Convair division, Jack L. Bowers, general manager, has announced.



R. J. Lutz

Lutz, an MIT graduate in aeronautical engineering, class of 1936, joined Consolidated at San Diego in that year and was in engineering for the next ten years, working on such aircraft as the PBY, PB3Y, B-24 and the XB-46. He held posts as struc-

(Continued on Page 2)



DCAS CHIEFS CONFER—Brig. Gen. Arthur E. Exon, center, commander of Los Angeles Region of Defense Contract Administration Services, confers with Cdr. Roy A. Evans, left, and Col. James R. Ourand who heads DCAS offices in San Diego.

Col. Ourand Will Head New Contracts Office

A Defense Contract Administration Services Plant Representative's Office (DCASPRO) has been established at Convair division's Kearny Mesa plant for administering contracts awarded by the Army, Navy, Air Force and Defense Supply Agency.

The office replaces the former Air Force Plant Representative's office at Convair. Col. James R. Ourand, former Air Force plant representative, is chief of the new office. The work force of eight Air Force personnel and 144 civilian employes remains unchanged.

Col. Ourand's office is one of two in San Diego to come under the DCAS Los Angeles Region under the direction of Brig. Gen. Arthur E. Exon, former commander of Wright-Patterson AFB.

Gen. Exon visited the Kearny Mesa plant Jan. 18 to welcome DCASPRO personnel into the organization and to confer with Col. Ourand and his staff.

Col. Ourand's DCASPRO organization will administer Convair contracts from all Air Force procurement agencies, the Navy Bureau of Weapons and other Navy agencies, the Army Material Command and the Defense Supply Agency.

Contracts with all other contractors in San Diego and Imperial counties are to be administered by a DCAS office with headquarters at Air Force Plant 19 under Cdr. Roy A. Evans.

Cdr. Evans previously was assigned as Bureau of Naval Weap-

(Continued on Page 2)

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between Feb. 1 and Feb. 15

Thirty-five-year: Dept. 756-0, E. H. Roeckel.

Thirty-year: Dept. 053-4, R. R. Hoover; Dept. 575-4, R. T. Le Vine.

Twenty-five-year: Dept. 019-0, G. E. Armstrong; Dept. 031-0, W. C. Willenborg; Dept. 041-0, R. F. Friar; Dept. 250-3, B. E. Ahring, O. C. Touchstone; Dept. 400-0, E. W. Stelmach; Dept. 509-0, J. M. Adamson; Dept. 509-1, D. W. Franklin; Dept. 565-1, M. W. Montgomery; Dept. 780-2, R. A. Bada; Dept. 812-2, G. F. Anderson; Dept. 818-2, V. L. Akers; Dept. 960-0, P. J. Lynch; Dept. 985-1, C. T. Brown; Dept. 988-4, W. P. Espinosa.

Twenty-year: Dept. 584-1, J. H. Hood; Dept. 452-0, R. M. Shuck; Dept. 732-0, J. J. Schiller; Dept. 957-0, J. R. Gluyas Jr.

Fifteen-year: Dept. 015-0, M. Castaneda; Dept. 019-0, F. Cruz; Dept. 141-4, G. W. Wilcox; Dept. 143-2, G. T. Chandler; Dept. 146-4, J. W. Washer; Dept. 149-2, W. W. Graham, R. M. Papa; Dept. 170-9, M. H. Martin; Dept. 250-4, C. Blake; Dept. 300-3, F. R. Castillo; Dept. 400-2, D. O. Gerde; Dept. 401-0, N. L. Jones; Dept. 451-0, L. W. Reap; Dept. 511-1, F. M. Nagy; Dept. 531-2, J. L. Phipps; Dept. 543-2, R. A. Kenyon; Dept. 544-5, R. F. Shard; Dept. 545-4, H. E. Catlin; Dept. 561-0, J. E. Benson; Dept. 588-1, G. E. Hansen; Dept. 758-0, A. Corrao; Dept. 780-3, A. M. Carl; Dept. 816-2, H. N. Brown; Dept. 832-3, N. S. Harrell; Dept. 835-2, F. S. Dear; Dept. 954-0 R. W. Fassler; Dept. 958-0, J. W. Johnson.

Ten-year: Dept. 058-0, C. H. Marier; Dept. 113-0, N. L. Eldridge; Dept. 124-0, M. R. Ussery; Dept. 130-1, R. J. Cook; Dept. 140-1, V. D. Malone; Dept. 142-2, R. Figg; Dept. 143-1, L. D. Green, D. F. Iverson; Dept. 143-2, W. C. Hovey; Dept. 143-4, R. Kerr; Dept. 149-2, C. A. McKinney; Dept. 170-1, R. L. McGraw; Dept. 170-9, M. E. Allen; Dept. 191-0, B. J. Fullam, L. J. Zupon; Dept. 195-0, E. B. Platt; Dept. 250-0, T. V. Ketner; Dept. 300-2, E. F. Isham; Dept. 300-3, P. H. Barmore; Dept. 401-1, F. E. Sladek Jr.; Dept. 454-0, M. E. Ashbaugh.

Dept. 565-1, J. Madryga; Dept. 572-1, W. R. Atkins; Dept. 574-1, J. D. Anderson; Dept. 584-1, J. W. Streetman; Dept. 596-0, D. A. Hamlin; Dept. 715-0, H. J. Freeman, W. V. Moore; Dept. 780-1, H. N. Kinsey; Dept. 780-2, F. E. Campbell; Dept. 780-3, M. L. Snider; Dept. 816-1, A. M. Smith; Dept. 818-2, P. B. McLane; Dept. 832-3, O. L. Richeson; Dept. 835-4, E. R. Garretson; Dept. 838-3, N. I. Yandell; Dept. 960-0, F. X. Marshall Jr.; Dept. 961-7, M. M. Montgomery; Dept. 963-3, J. G. McFarland; Dept. 963-4, R. Rios; Dept. 963-8, R. D. Bolton; Dept. 972-0, J. A. Finley; Dept. 973-3, P. A. Wolf; Dept. 974-4, I. C. Lingard; Dept. 978-3, J. D. Bray; Dept. 979-1, J. S. Miller; Dept. 979-4, E. E. Leger; Dept. 984-3, C. Bierman Jr.; Dept. 985-1, H. W. Anderson, V. D. Brose, J. D. Hammer, R. B. Pewsey.

Awards

CONVAIR

Employe Suggestion awards approved for the week ending Jan. 21.

Dept. 001, H. G. Mondy, P. H. Rudolph; Dept. 002, H. B. Bender, E. Fountain; Dept. 015, L. M. Persing; Dept. 016, W. J. Gibson; Dept. 024, J. P. Kany; Dept. 041, J. C. Furtado, J. W. Ward; Dept. 113, N. D. Jones; Dept. 115, L. F. Stephens; Dept. 122, F. H. Cooey; Dept. 125, T. C. Mitchell; Dept. 141, L. E. Jolley, T. W. O'Laughlin; Dept. 191, V. R. Pieters, E. V. Torp.

Dept. 226, A. A. Adams (two awards), A. R. Thompson; Dept. 401, R. G. Metz; Dept. 460, A. J. Danish; Dept. 507, W. S. Alcaraz; Dept. 733, N. M. Brock, J. E. Kemp; Dept. 756, H. O. Kuntze; Dept. 758, V. Tocco, R. B. Wilson; Dept. 759, G. D. Lundquist; Dept. 761, N. Chaudoin; Dept. 763, E. E. Senior, J. D. Willingham; Dept. 832, D. L. Powell; Dept. 835, E. E. Hansel, W. S. Hill; Dept. 958, D. C. Bain; Dept. 972, K. F. Cash, J. A. Contasti; Dept. 973, P. A. Wolf.

Employe Suggestion awards approved for the week ending Jan. 28.

Dept. 041, G. A. Hasti; Dept. 123, L. A. Lopez, D. R. Pierce; Dept. 130, J. V. DePauli; Dept. 140, D. L. Shuffler; Dept. 141, G. E. Stachwick; Dept. 142, L. E. Johnson; J. H. Rauch; Dept. 524, M. R. Dehner; Dept. 576, N. L. Akins; Dept. 663, L. R. Fowler; Dept. 715, E. S. Budzinski; Dept. 758, J. Engleman; Dept. 759, N. B. Byrd, E. W. Ford, G. D. Lundquist, J. F. Mayer; Dept. 979, J. A. Knight.

Personals

CONVAIR

We wish to thank our many Convair friends for the expressions of sympathy, flowers, and contributions to the American Cancer Society at the death of our wife and mother, Gertrude Bender.

Homer M. Bender, Convair retiree
Mr. and Mrs. Homer B. Bender, Dept. 002.
Mr. and Mrs. Wade M. Bender, Dept. 024.
Mr. and Mrs. Francis S. Bender, Dept. 031.
Mr. and Mrs. Paul Bender.

* * *

We wish to thank our Convair friends for their expressions of sympathy following the sudden death of our wife and mother, Lola, on Jan. 25.

Thomas F. Silvernail of Dept. 744-0; daughter, Leta Beth, and son, Peter.

General Dynamics News

Published by General Dynamics Corporation, One Rockefeller Plaza, New York, N.Y. 10020.

Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

In-Plant Training

ORIENTATION

NEW EMPLOYES—Educational services staff, Lindbergh Field, ext. 491. Bldg. 14 auditorium, Tuesday, March 1, 8 a.m. and 4:30 p.m. Kearny Mesa, ext. 1931, Bldg. 17, Room 3, Monday, March 7, 8 a.m.

PROFESSIONAL/TECHNICAL

HYDROGEN PEROXIDE (H_2O_2) SAFETY & HANDLING CERTIFICATION—Hal Rubin, Kearny Mesa, ext. 1931. Limited enrollment. Vandenberg AFB, Feb. 8.

PLASTICS PRODUCTION MIXING CERTIFICATION — Hal Rubin, Kearny Mesa, ext. 1931. Feb. 14-18, 10 hours, 1:30-3:30 p.m. daily. Bldg. 27, Kearny Mesa. Limited enrollment.

AIRPLANE MECHANICS (On-the-Job Training) — Eight hours per day, 26 weeks. Lindbergh Field, Bldg. 3. Coordinator, Wayne Turner, ext. 491, Lindbergh Field.

F & CD-IR WORKSHOP—Hal Rubin, Lindbergh Field, ext. 491. Call for future schedule.

ENGINEERING HELPER TRAINING (On-the-Job) — Dave Wyche, Lindbergh Field. Eight hours per day, 20 weeks: Jan. 27-June 21; Feb. 14-July 1; March 7-July 22. Bldg. 5, Lindbergh Field plant. For information call Harry Miller, Kearny Mesa, ext. 1939; Wayne Turner, Lindbergh Field, ext. 491.

PLASTIC FABRICATION TRAINEE (On-the-Job) — Lindbergh Field. Eight hours per day, 16 weeks, Jan. 20-June 10. For information call Wayne Turner, Lindbergh Field, ext. 491.

MILLING MACHINE OPERATORS (On-the-Job Training)—Eight hours per day, 26 weeks, Lindbergh Field, Bldg. 3. Coordinator, Wayne Turner, ext. 491, Lindbergh Field.

RELIABLE ELECTRICAL CONNECTIONS—Educational services staff. For information and quota call ext. 1931, Kearny Mesa. Weekly 7 a.m.-3:45 p.m. Bldg. 17, Room 10, Kearny Mesa.

AFTER HOURS TRAINING IN-PLANT

UNIVERSITY OF CALIFORNIA EXTENSION COURSES — Management Presentation Tools and Techniques, Wednesdays, 5-7:30 p.m. Feb. 9-June 8. Bldg. 17, Room 3, Kearny Mesa; Vince Martin, instructor.

Data Processing and Computer Programming, Tuesdays, 5-7:30 p.m., Feb. 8-June 14. Bldg. 17, Room 7, Kearny Mesa; F. D. Schwend, instructor.

Management Information Systems, Mondays, 5-7:30 p.m., Feb. 7-June 13. Bldg. 17, Room 7, Kearny Mesa; C. K. Twohey, instructor.

Computer Programming, Thursdays, 5-7:30 p.m., Feb. 10-June 9. Bldg. 17, Room 7, Kearny Mesa; F. D. Schwend, instructor.

Information Storage and Retrieval, Tuesdays, 5-7:30 p.m., Feb. 8-June 14. Bldg. 17, Room 3, Kearny Mesa; Carl Dragila, instructor.

CITY COLLEGE COURSES—Electronics 75 (Introduction to Digital Computers); Tuesdays, 5-7 p.m., Feb. 8-June 14 Bldg. 17, Room 2, Kearny Mesa; Dick Forrest. Electronics 76 (Computer Logic and Ciriuitry), Thursdays, 5-8 p.m., Feb. 3-June 16. Bldg. 17, Room 2, Kearny Mesa; Dennis Suchecki.

OUT-OF-PLANT

UNIVERSITY OF CALIFORNIA EXTENSION, SAN DIEGO—Catalogues for the spring semester are available at Convair educational services offices, Kearny Mesa and Lindbergh Field plants.

TUITION REFUNDS—Employes must submit a request (Form A346) to educational services no later than THREE weeks after the starting date of the class. Requests submitted after this time will not be approved.

Invention Disclosures

CONVAIR

ARAIZA—F. J., Dept. 491-2. Production of Hollow Particles Composed Principally of Asphalt.

ARMSTRONG—Dr. R. C., Dept. 594-0. Internal Centrifuge.

McKEOWN—Daniel, Dept. 596-0. Energy Transfer Probe.

ONSTAD—R. C., Dept. 655-0. Propogation Analog to Digital Converter.

SLYSH — Paul, Dept. 542-0. "Ratio" Spaceborne Modular Structural Assembly Technique for Paraboloidal Antennas.

Retirements

CONVAIR

CAMMARATA—Anthony, Dept. 251-4. Seniority date Oct. 2, 1953, retired Jan. 29.

GOGGIN—Marguerite S., Dept. 585-2. Seniority date April 17, 1951, retired Jan. 21.

GOGGIN—Lewis P., Dept. 509-1. Seniority date March 8, 1951, retired Jan. 21.

HAPPEL—Carl F., Dept. 148-3. Seniority date Aug. 1, 1957, retired Jan. 14.

HARRIS—Raymond J., Dept. 149-2. Seniority date Nov. 4, 1946, retired Jan. 28.

LASSEY—Doris G., Dept. 832-4. Seniority date July 3, 1957, retired Jan. 25.

LONDON—Louis Y., Dept. 24-0. Seniority date June 16, 1947, retired Jan. 14.

McDANIELS—Grace W., Dept. 733-0. Seniority date Aug. 14, 1950, retired Jan. 6.

MINAHAN — John A., Dept. 250-3. Seniority date May 9, 1950, retired Jan. 14.

PETERSEN—Carl F., Dept. 193-3. Seniority date May 9, 1950, retired Jan. 28.

ROWLISON—Beulah H., Dept. 732-3. Seniority date Oct. 30, 1951, retired Jan. 28.

WEBSTER—Edith M., Dept. 191. Seniority date Aug. 29, 1951, retired Jan. 31.

WILLIAMS — Julian G., Dept. 130. Seniority date Oct. 10, 1953, retired Jan. 12.

WILLIAMS — Walter C., Dept. 250. Seniority date April 26, 1956, retired Jan. 31.

Deaths

CONVAIR

DANZL—V. S., Dept. 613-4. Died Jan. 24 suddenly in New Mexico. Survivors include wife, Jean Ann.

FERRISO—C. C., Dept. 596-0. Died Jan. 31. Survivors include wife, Adelheid.

SALVAGE HOURS 8 A.M. UNTIL NOON

Employes' sales day at the Lindbergh Field salvage yard, adjacent to Gate 5, will be this Saturday, Feb. 12. Sales hours are from 8 a.m. until noon. No children are permitted in the yard.

Over 80 Pct. Savings Plan Participation

(Continued from Page 1)

1. Also, contributing members who wish to make a change in their participation must send a change notice to employe services no later than Feb. 28, to be effective April 1.

Contributing hourly members may elect to invest 2 or 4 per cent of base pay in 1966 to 1967. This may be increased, if desired, to 6 per cent in 1968, 8 per cent in 1969 and 10 per cent in 1970. Salaried employes may designate investment of 2 to 10 per cent of base pay.

Currently, 77 per cent of hourly employes at Stromberg-Carlson's Data Products division in San Diego have signed for the Savings and Stock Investment Plan. Sixty-three per cent of salaried employes already had signed. Electronics-SD participation results were not definitely known at press-time.

Each eligible employe has four choices of the manner in which his payroll deductions and the Company contributions may be invested. The four choices are outlined in detail in the plan booklet.

Each individual investing in one of the plans will receive a report on the status of his holdings a short time after the end of each calendar year.

The Savings and Stock Investment Plan is geared to meet long-term requirements and also provide flexibility over shorter periods, including the opportunity under certain conditions for the employe to withdraw periodically part of his holdings and part of the Company's contributions in his behalf without penalty.

Questions about the Plan may be directed to employe services, ext. 2328, KM.

LJ II Launch Called 'Success'

(Continued from Page 1)

was rescheduled for Jan. 18. but postponed again a couple of days until overcast skies cleared enough for the firing to be visually recorded with optical devices.

Hurt emphasized that Little Joe II, called the most powerful U. S. solid propellant rocket, has met all NASA requirements and accomplishments throughout the overall program. Convair has produced eight Little Joe II launch vehicles for NASA since receiving the contract in 1962.

With the conclusion of the current Apollo test series, the low-cost, reliable launch vehicle now is being proposed for additional test missions.

The final vehicle, and fourth attitude controlled Little Joe II, now is in last stages of completion at Convair's Lindbergh Field plant. Personnel assigned to the Little Joe II program will spend the next few months preparing final reports to wind up this phase.

Convair launch operations at White Sands will be phased out within the next couple of months, said Hurt, with NASA assuming maintenance of the base. W. W. Fenton, who took over as site administrator from J. S. Boaz just a year ago, and A. W. Kellogg, launch operations group engineer, are responsible for preservation of facilities, equipment, and launcher for future use. The crew of some 20 Convair people will apply protective coating to all outside equipment to keep it safe from weather before it is turned over to NASA. Convair people maintaining the telemetry station returned to San Diego the first of this month and the rest of the operations crew will be back next month. All have been reassigned to other programs.



RECEPTIONISTS — Jean Howard, left, and Elaine Paras, receptionists at Kearny Mesa plant, arrange bouquet for display.

First Impression

60,000 Visitors a Year Receive Friendly Hello at Kearny Mesa

Approximately 60,000 visitors to Convair division's Kearny Mesa plant each year are greeted with a friendly smile at the Bldg. 2 "front desk" by the two receptionists—Jean Howard and Elaine Paras.

Jean handles all material department and vendor contacts, schedules meetings for lobby conference rooms and registers visitors. Elaine checks security clearances, issues visitor badges and vendor contacts other than material department.

Many of the floral bouquets that add to the attractiveness of the reception area come from the receptionists' home gardens. Others are brought in by friends in the plant.

One vendor periodically brings in a bouquet of roses from his garden. Receptionists say he seems embarrassed to have other vendors see him so he keeps them concealed in a large briefcase until "just the right moment."

Both Harvey E. Moose, director of material, and Stanley Sharp, manager of security, have mentioned how pleasantly they both meet the public and V. O. Olson, small business administrator with offices off the lobby, says a day rarely passes that visitors do not comment on the gracious assistance they have received.

Things are seldom dull. Not long ago a young man dashed up to the desk and asked: "What room is Miss Smith in?"

"What's her department?" the girls asked.

"I don't know, but she's just had an appendectomy."

He was directed to Sharp Memorial Hospital, farther south on Highway 395.

Service Center Moves Ahead

(Continued from Page 1)

sion) was delivered to Central Airways Inc. on Jan. 23 at Fort Worth, Texas.

Now in work are two Convair 640s for Caribair; one for Hawaiian; three Convair 600s for Central; and a 240 for ultimate use as a General Dynamics' Convair 600 demonstrator.

Convair-Liners coming in during the next month to go into modification at the Service Center include an Hawaiian Airlines' 340 on Feb. 15, and another on March 7; a Caribair 340 also on March 7; and a Central 240 on Feb. 25.

Meanwhile, work is continuing on military aircraft under a contract from the Air Force's San Antonio Air Materiel Area which calls for de-processing of 61 F-102s and six TF-102s. As of this week 28 will have been delivered on a one-every-other-workday schedule.

The last nine jet interceptors arrived stateside from Hawaii last week.

Capt. Larry Smith, AF pilot, test flies every plane from Lindbergh Field adjacent to the Service Center, before delivery.

The Service Center is continuing to bid on both commercial and military maintenance and modification work with a strong sales effort now under way. Several hundred capability brochures, outlining the Service Center's services, facilities, and skills are going to AF Air Materiel Area headquarters at Sacramento, San Antonio, Warner-Robbins; AF Logistics Command at Dayton, Ohio; and to customer agencies in Washington, D.C. Also, the sales brochure will be placed in the hands of executive owners of the Convair-Liner 240/340/440 series and other commercial aircraft owners in this country, and government agencies including the Federal Aviation Agency and Department of Agriculture.

Simultaneously, an intensive hiring program is under way. The Service Center intends to add 200 aircraft mechanics, bringing its employment to near the 600 mark.

Col. Ourand to Head New Defense Office

(Continued from Page 1)

ons representative with offices at Lindbergh Field.

Col. Ourand said the DCASPRO activation is another step in a nationwide plan to consolidate field offices of the military departments and DSA.

"The consolidation aims at improving management and operations through the establishment of uniform policies, procedures and organization," he said. "It provides Convair with a single point of contact with the Department of Defense, a lessening of governmental control over industrial operations and a uniform application of regulations."

DCASPRO activities will include pre-award surveys of Convair capabilities, quality assurance, security clearances for plant and personnel, contract payments and similar functions required by the government during production of defense material.

R. J. Lutz Appointed To Marketing Post

(Continued from Page 1)

tural designer, flight test engineer and assistant project engineer. In 1946 he joined Westcoast Engineering Development Co. and in 1949 shifted to the RAND Corp., returning to Convair in 1956 on the staff of the vice president-engineering.

He transferred to General Dynamics New York Headquarters in 1962.

Lutz is an associate fellow of the American Institute of Aeronautics and Astronautics and has served as Corporate representative on the Aerospace Technical Council of the Aerospace Industries Association of America.

GENERAL DYNAMICS NEWS

Wednesday, February 9, 1966

Reproduced on this page is the second in a series of advertisements, placed by General Dynamics in a number of prominent national publications.

Keeping Alive in Space: A report from General Dynamics

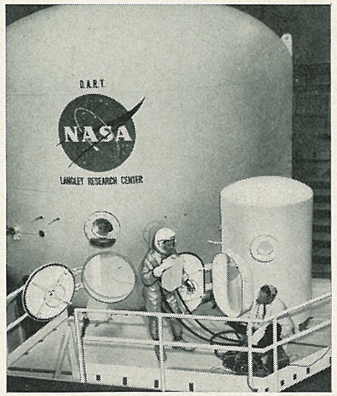
QUESTION: An astronaut in space needs 11 pounds of water and two pounds of oxygen a day to live. If you seal him into a spaceship, how long could just 11 pounds of water and two pounds of oxygen last him?

ANSWER: Forever, if necessary.

The reason, of course, is that air and water can be regenerated indefinitely, providing that a total man-machine system is properly organized.

Such a system is the heart of an experimental life-support facility which General Dynamics has recently built for the National Aeronautics and Space Administration. It is designed to take care of the basic physiological requirements of four men in a zero-gravity environment for a full year, with minimal resupply once every three months.

Regeneration is a basic fact of nature—nothing is ever really lost. The job is done by the total biosphere of the earth, its billions of cubic miles of atmosphere, its millions of miles of earth and sea, its



This sealable structure contains the prototype of a life-support system which includes facilities to maintain four men in space for a year.

thousands of species of animals, plants, insects and bacteria.

Compressing even part of that system to meet the requirements of men in space is a capability that has developed only recently.

The problem—weight:

General Dynamics has been involved in the requirements of space travel for almost a generation through its development of the Atlas and Centaur space vehicles. We've been working even longer with the problem of sealed environments in the submarines we've been building since 1900.

But the submarine problem is somewhat different. Drinking water and oxygen can be produced directly from the surrounding water—which, because of its buoyancy, also makes weight a relatively minor problem.

In space, weight, including supplies, comes at an incredibly high premium.

Thirteen pounds of water and oxygen per man per day for four men for 365 days adds up to almost ten tons of water and oxygen.

One manned space platform now in development will weigh approximately 25,000 pounds. Without regeneration another 20,000 pounds of just water and air would be needed.

New water from old:

To avoid carrying such excess weight, the system General Dynamics put together for the National Aeronautics and Space Administration ties water, air and waste removal requirements into one integrated system.

Exhaled carbon dioxide, humidity, air contaminants, used washing water and urine are filtered, absorbed, heated, cooled, catalyzed and electrolyzed in a constantly operating process to create pure water and pure oxygen for reuse.

For water recovery in our system, we chose an evaporative method as the most efficient.

Excess vapor from the cabin air, used wash water and urine are collected in holding tanks and are drawn into wicks by capillary action. At the other end of the wick, water is evaporated into a stream of warmed air. The contaminants are left behind in the replaceable wicks. Condensed vapor moves through a series of filters finally to return to a central reservoir as pure water.

Regenerating air:

Air regeneration presents a more complicated problem.

Normal air is a mixture of oxygen, nitrogen, carbon dioxide, water vapor, trace gases and contaminants. Exhaled air contains less oxygen and is enriched with carbon dioxide. On earth the constant interchange between animals, atmosphere and plants consumes the carbon dioxide and the contaminants and supplies fresh oxygen.

In a sealed ship the oxygen would be rapidly used up and the carbon dioxide built to a poisonous concentration.

Moreover, new contaminants are constantly being formed. At the end of some Project Mercury flights, the cabin air filter contained dozens of contaminants not present at takeoff. Some, such as ammonia, can come from ordinary chemical reactions to an astronaut's own perspiration.

Machinery now has to do the job otherwise done by nature.

How it works:

In our "spaceship," cabin air—the original mixture, plus exhaled breath, excess moisture from cooling systems and new contaminants—is continually circulated through a bank of equipment. A *dehumidifier* removes excess moisture. A *charcoal filter* holds back some contaminants. A *catalytic burner* converts others. And a *separator* screens out the carbon dioxide. But the removal isn't final.

The water wrung out by the dehumidifier, for instance, is added to the central tanks for reuse. The carbon dioxide is moved to another chamber where it is mixed with hydrogen at a high temperature in the presence of a catalyst. That reaction creates water and pure carbon.

Techniques have not yet been developed to use the carbon, so it is simply blown into a storage area. But the water, collected through a porous plate, is transferred to an electrolytic cell where an electric current breaks it into hydrogen and oxygen.

The hydrogen is pumped back to fuel the previous reaction in which the water was formed. The oxygen returns to the cabin air to be breathed again.

A separate problem is presented by solid wastes. In a biological food system utilizing algae or bacteria, these wastes might fuel the growth process, but now there is no use for them. International agreements forbid the contamination of space, so they cannot be jettisoned.

Solid wastes, therefore, are dehydrated into a powdery dry residue and stored. In operating spaceships, this may serve as additional shielding against radiation or meteorites.

The work ahead:

The entire life-support system is the most advanced yet developed and does include, of course, much more than the air and water regeneration loop.

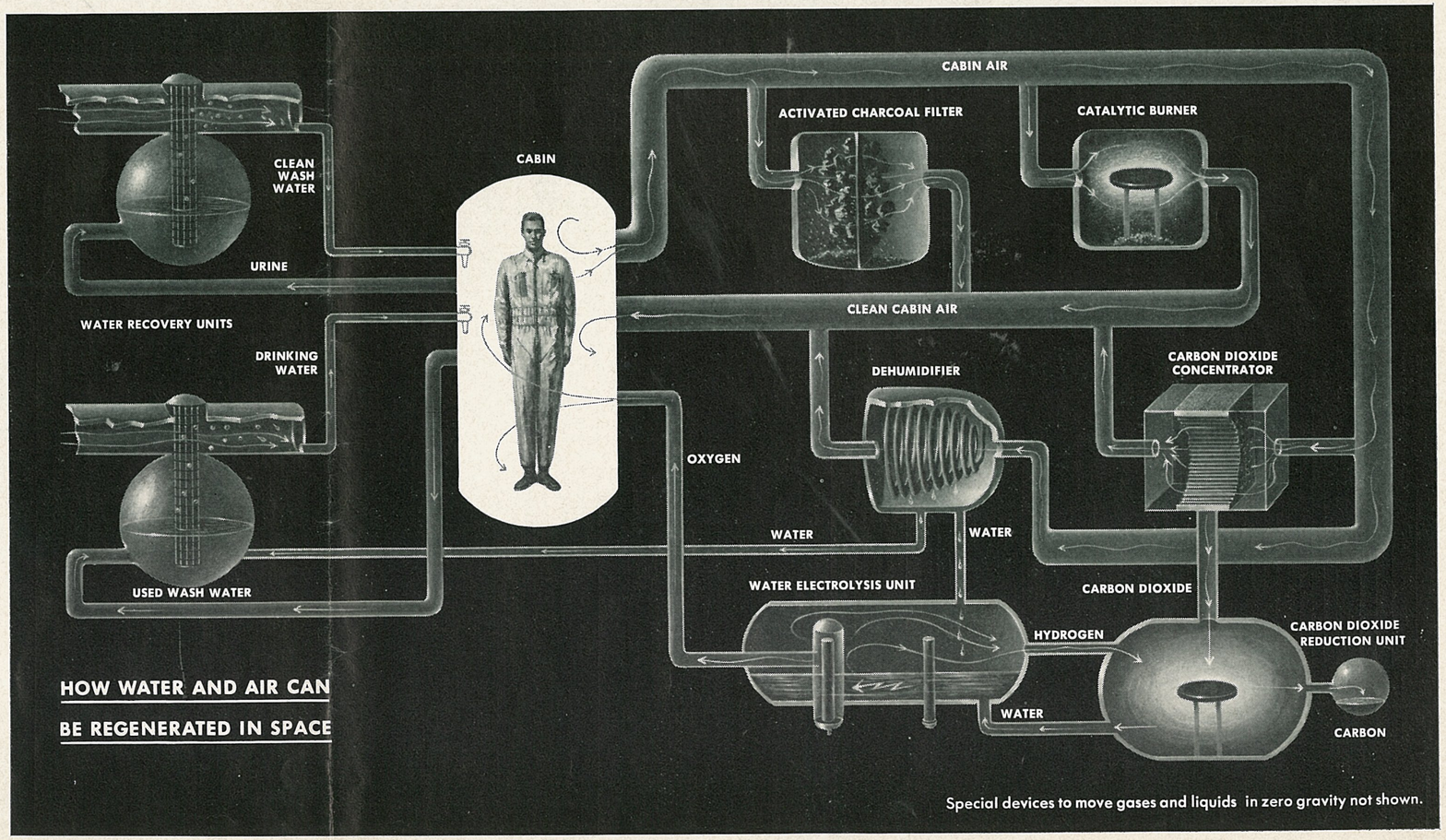
Other facets are an electricity-generating system, mechanisms to circulate gases and liquids, monitoring and control instrumentation, food preparation, storage and other facilities.

Efficient regeneration of food is not yet feasible. So dehydrated food will be carried by the spaceship and resupplied.

All in all, we think the prototype is close to what will be needed in space. But as experimental equipment it's still somewhat heavy—over two tons altogether. We expect the long period of ground testing to be conducted by the National Aeronautics and Space Administration to provide further guidelines for the design of much more compact and lighter equipment.

General Dynamics is a company of scientists, engineers and skilled workers whose interests cover every major field of technology, and who produce for defense and industry: aircraft; marine, space and missile systems; tactical support equipment; nuclear, electronic, and communication systems; and machinery, minerals and gases.

GENERAL DYNAMICS





PRESENTATION — Dr. John Huffman, left, executive director of Community Educational Resources section of San Diego County Department of Education, receives Convair-made "Living in Space" films from Dr. Robert Armstrong. C. F. McMenamy of Convair, center, is chairman of CER Advisory Committee and president of San Diego Industry-Education Council.

Students Across U.S. Will See NASA Film on 'Living in Space'

"Living in Space," a three-part color film made by Convair and related to an advanced life support system designed and built at the Kearny Mesa plant during the past 2½ years, is to be distributed throughout the country by NASA for showing in high schools and colleges.

The first of the series of films was presented Jan. 20 to Dr. John Huffman, executive director of the Community Educational Resources section of the San Diego County Department of Education, at a meeting of the Community Education Resources Advisory Committee in the Sands Hotel.

Dr. Robert C. Armstrong of Convair's life sciences, Dept. 592-0, and program manager for the life support system development, presented the films on behalf of James Eteredge of NASA's office of public affairs.

C. F. McMenamy of Convair drafting services, Dept. 566-3, is both president of the San Diego Industry-Education Council and chairman of the Community Educational Resources Advisory Committee.

The life support system is designed to support a crew of four men in space for one year. It is featured in the second of a series of General Dynamics advertisements appearing in national publications this month (see page 3).

Dr. Armstrong said the life support system was the closest approach to a closed ecology yet built and operating and required a closely integrated effort between many biological and engineering disciplines.

Dave Krause was deputy program manager and George Drake was chief of systems engineering on the project.

Other personnel who had key roles included J. R. Burnett, D. L. Hobart, B. W. Hryekewicz, C. D. King, S. J. McCunney Jr., B. F. North, E. J. Russ, W. J. Sevier, J. A. Steele, C. D. Strode and D. W. Vorbeck.

The three films were produced as part of the same NASA contract by Convair's motion picture Dept. 124-0.

Ray Ussery was producer, Bob Montague, director-editor, Mike Reese handled cinematography and Ussery, Keith Hargett and Dick Crawford were script writers. King served as technical consultant.

Part I of the film depicts the requirement for regenerative systems for long-duration space missions.

Part II includes an imaginary space flight, demonstrating the hour by hour operation of systems and man's adaptability to zero gravity. It illustrates the regenerative processes for recovery of oxygen from carbon dioxide and of potable water from liquid wastes. It also shows zero-gravity techniques for food preparation and eating, personal hygiene and waste collection.

Part III covers the broader concepts of life support systems operation and control and the relationships with the crew and other spacecraft systems.

Playing the part of astronauts in the film were Dick Wolf, Ernie Casco, Ben Pierce and John Piatt Jr.

Montague said film footage was made during various stages of manufacture to give an "inside look" at the systems.

"Invisible" fine steel wire was used in "Mary Poppins-like" sequences simulating zero gravity. Use of an upside-down camera run backwards created the illusion of an astronaut floating through the hatch to upper-floor level.

George B. Woods of Dept. 544-1 assisted with creation of a fluid used to simulate water remaining in a glob and floating around the cabin after being squeezed from a sponge "in space." A "vacuum razor" and "edible toothpaste" also were devised for the film.

McMenamy said releasing such films and information on current scientific development for school showings is typical of what can be done with industry-community cooperation.

"In some study areas, we have cut up to ten years from the time between when new information is developed and the time it appears in text books," he said.

J. W. Swank Talks On Merit Rating

J. W. Swank, industrial relations manager at Stromberg-Carlson's Data Products division, spoke on Merit Rating Systems to members of the San Diego County Personnel Management Association last month, Jan. 18, at Point Loma Inn.

Swank outlined the different types of merit rating systems used in industry and steps for developing them.

FUNDS FOR OCEAN TRACKERS BOOSTED

The U. S. Navy has issued to Electronics division a $20 million supplemental agreement to an existing contract to install satellite communication systems aboard each of three former Navy tankers.

Under the existing contract awarded in 1964, General Dynamics is converting the World War II tankers to serve as ocean-going tracking stations for NASA's Apollo moon program.

The supplemental agreement, to be administered by the Navy's Bureau of Ships, covers the installation of special electronic equipment that will enable the ships to communicate with stations anywhere in the world through an orbiting communication sattellite.

Four divisions are participating in the conversion contract: Electronics division is prime contractor and has responsibility for systems integration; Electric Boat, ship construction; Convair, large antenna structures; Stromberg-Carlson, telephone and intercommunication equipment.

Contract Calls For Life System Support

Convair division has received a $241,600 contract for providing technical support for one year for tests to be conducted with the Convair-built integrated life support system at NASA's Langley Research Center in Virginia.

Dr. Robert Armstrong of Convair's life sciences department said Convair personnel assigned will work with NASA in planning, conducting and analyzing "in depth" manned and unmanned research tasks.

Six life sciences department representatives are now assigned to the project at Langley and personnel representing other life sciences disciplines are to have short-term assignments as needed.

Bob North is project engineer. Others now at Langley are Boris W. Hryekewicz, Roy Holmes, Jack E. Koency, J. H. Spencer and D. W. Kegebein.

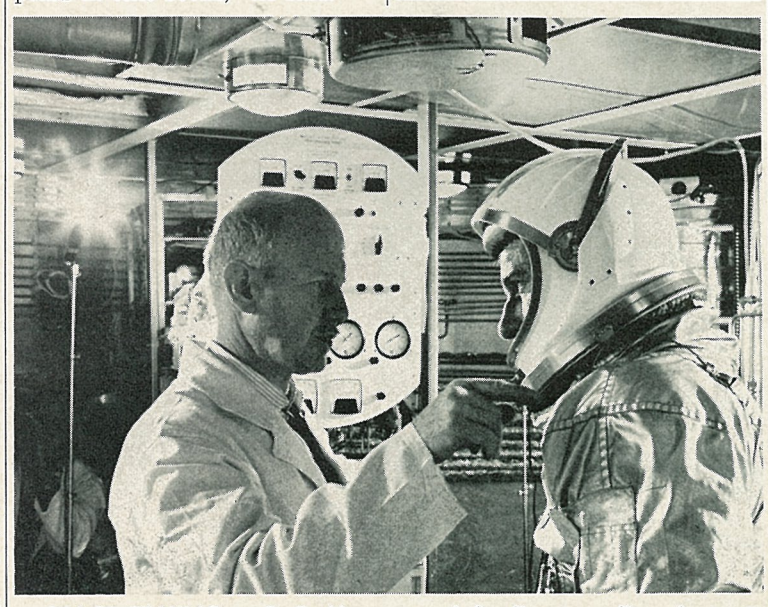
Dr. Armstrong said some of the manned tests are expected to be of several weeks duration with Convair personnel to work on a three-shift, around-the-clock schedule.

Cavanaugh Honored By S-C Club in Jan.

Joe Cavanaugh, engineering illustrator at Stromberg-Carlson Data Products, was honored as Man of the Month for January by the Stromberg-Carlson Management Club at San Diego.

The award goes monthly to an S-C individual receiving the most votes of the club's membership as being outstanding on the job, or in club and community activities. Recipients do not have to be club members.

Cavanaugh, with S-C for five years, was singled out "not only for his job skills, but also for his sense of humor and fertile imagination," said Ray Mattas, club president.



SPACE FILMING — R. B. Montague, left, director-editor, instructs "astronaut" Ernie Casco during filming of "Living in Space" for NASA at Convair division.

Nation's Leading Space Experts Expected at Astronautical Meet

Many of the nation's leading space scientists and engineers, including a number from General Dynamics divisions, will be attending the 1966 American Astronautical Society meeting Feb. 21 through 23 in the El Cortez Hotel in San Diego.

Karel J. Bossart, Convair division technical director, is general chairman. Jack L. Bowers, Convair general manager, has been serving on a 13-member program advisory committee.

Astronaut M. Scott Carpenter, Dr. Leo Goldberg of Harvard College Observatory and L. A. Hyland of Hughes Aircraft Co. will be guest speakers. Dr. Harry J. Goett of the Western Development Laboratories Division of Philco Corp. will keynote.

"Practical space applications" is the theme for the three-day meeting with emphasis on utilization of space technology to satisfy the needs of mankind. Sessions will be divided into present and past applications, near-future applications, far-future applications, international aspects and economic and organizational considerations.

Among near-future applications presentations will be talks on "Applications of Saturn/Apollo capability" by William B. Taylor, NASA Apollo applications director; "Space experiments program for practical applications" by Willis Foster, director of NASA manned space science programs, and "Practical aspects resulting from NASA advanced research and technology" by John Sloop, assistant associate administrator for NASA manned space science programs.

Far-future applications talks will include "Practical use of extraterrestial resources," "Hospitals in space," "Commercial uses of space," "Potential uses of a survey satellite in vegetation and terrain analysis" and "Satellite detection of natural resources."

Also, "World weather watch," "Navigational satellite systems of the 1970s" and "Space communications beyond 1975."

The American Astronautical Society has more than 1,500 members and is the only scientific organization in the nation dedicated solely to advancement of the astronautical sciences.

Registration for the annual meeting is $5 for members and $10 for non-members. Registration forms are to be returned to American Astronautical Society, P.O. Box 2143, La Jolla, Calif. 92038.

Orlando, Fla. Company Slated To Become Part of Electronics

General Dynamics has agreed to acquire Dynatronics, Inc. of Orlando, Fla., a producer of advanced telemetry equipment. Richard A. Wilson, president of Electronics division of GD, made the announcement, adding that Dynatronics will become a separate operation within Electronics division.

Don C. Prim, general manager of Electronics' San Diego operation, said a close working relationship is foreseen between Dynatronics and the SD facility due to compatibility of product lines.

"The addition of Dynatronics will bring together a strong and experienced capability in telemetry and telemetry systems and in the design, production and management of complex space systems," Wilson said.

The transaction has been approved by the General Dynamics Board of Directors and is subject to approval by Dynatronics stockholders.

The Florida-based company has been a supplier of telemetry equipment to the armed services and NASA since 1957. It produces telemetry equipment which is used to transmit data from space vehicles to ground or ship-based stations and to convert and send this information to monitors and computers.

Electronics division is engaged in research and development and production of military communications equipment and systems managed at Rochester, N. Y., and San Diego, Calif. Products include space tracking, single side band radios, radar and equipment for data transmission, aerospace ground support and anti-submarine warfare.

Con-Trib Financial Reports

General Dynamics/Convair Employes' Con-Trib-Club
Charity Fund
Statement of Financial Condition—Sept. 30, 1965
and
Receipts and Disbursements—Oct. 1, 1964 to Sept. 30, 1965

ASSETS

Total Assets—Cash in bank	$12,825.04

LIABILITIES AND SURPLUS

Account Payable—Emergency Aid Fund	$ 548.77
Surplus Fund	12,276.27
Total liabilities and surplus fund	$12,825.04

RECEIPTS AND DISBURSEMENTS
Oct. 1, 1964 to Sept. 30, 1965

Total Receipts		$77,847.26
Disbursements		
Total charitable contributions	$82,010.00	
Transfers to Emergency Aid Fund	7,787.10	
Audit expense	200.00	
Office supplies	19.95	
Total disbursements		90,008.05
Excess—disbursements over receipts		$12,160.79

General Dynamics/Astronautics Employes' Con-Trib-Club
Charity Fund
Statement of Financial Condition—Sept. 30, 1965
and
Statement of Receipts and Disbursements Oct. 1, 1964 to Sept. 30, 1965

ASSETS

Total Assets—Cash on hand and in banks	$ 78,785.98
Total Surplus	$ 78,785.98

RECEIPTS AND DISBURSEMENTS

Receipts		$411,555.80
Disbursements		
San Diego Area	$395,416.27	
Altus Air Force Base	2,300.00	
Cleveland	250.00	
Edwards Air Force Base	400.00	
Florida	9,725.00	
Huntsville	250.00	
Los Angeles	1,700.00	
Vandenberg Air Force Base	17,675.00	
Total charitable contributions	$427,716.27	
Transfer to Emergency Aid Fund	5,000.00	
Audit expense	300.00	
Total Disbursements		433,016.27
Excess—disbursements over receipts		$ 21,460.47







RECOGNITION — In photo at left are Convair men at Western Test Range, all of whom helped contribute to $1.7 million savings accomplished during 1965 in Cost Reduction program at Vandenberg AFB. Donald Fagan, Convair manager, is at left. Center photo: Convair launch crew at Complex 13, Eastern Test Range, whose members won Convair's Craftsmanship Award of Month for third time. Photo at right: Grant Hansen, vice president for launch vehicle programs, commends J. F. Good and O. C. Priest on cost reduction accomplishments. Their suggestions will save division nearly $1 million.

Triple Craftsman Wins Are Scored Off-Site

Employes in Dept. 016 (electric bench) at Lindbergh Field received "Craftsmen of the Month" honors for the first time in December with a quality index of 123.4. The department's average number of defects per 100 manhours was .22 for the month, compared with 4.77 in February, 1965, the first month the department was entered in the competition.

Craftsmanship honors at the Eastern Test Range went for the second consecutive month to Dept. 979's Complex 36-B with a quality index of 126.4. The December win was the third for Complex 36-B.

At the Western Test Range, Dept. 985-3 (fabrication and maintenance shops) also posted its third win with a 118 quality index.

Kearny Mesa plant Craftsmanship honors for the month went to sheet metal (Dept. 732) with a 112.3 quality index. Dept. 732 also previously had been top department in competition at Kearny Mesa in December, 1964.

Complex 36-B at ETR had 2.27 average defects per 100 inspection tasks in December, down from 4.69 in November and a high of 42.56 in June. Dept. 985-3 at WTR had a perfect 0.00 defects average for December.

Dept. 732 at Kearny Mesa had .05 per cent of parts rejected in December, down from .42 in November, .66 in October, .33 in September and 2.22 in August.

Runner-up honors in the December competition at Kearny Mesa went to telemetry operations Dept. 780-4 with a 111.1 quality index and Centaur test operations Dept. 974 with a 110.5 quality index. A quality index over 100 indicates improvement.

Placing second and third in the competition at Lindbergh Field were Dept. 041 (C-141 empennage assembly) with a 119.2 quality index and Dept. 019 (metalbond fabrication and assembly) with a 113.8 quality index.

Dynamics Men On UC Faculty

E. D. Heller, Convair manager of cost reduction and value control, will teach a course in Principles and Applications of Value Analysis during the University of California Extension's spring semester beginning this week.

The course will deal with the fundamentals of the functional analysis approach to cost reduction, outlining techniques and implementation programs for industry, value education and military requirements.

Other General Dynamics men, all but three from Convair, on the UC Extension faculty for the coming semester are: Business Administration—Bruce C. Crabtree, systems and procedures analyst, who will instruct a course on PERT/Cost (Project Planning and Control); Carl C. Dragila, senior reseach group engineer in advanced information systems, Information Storage and Retrieval. Vince A. Martin, educational services coordinator, will teach Management Presentation Tools and Techniques; F. D. Schwend, senior EDP programmer, Computer Programming, and a section of a course on Data Processing and Computer Programming. Robert W. Swanson, master scheduler in program planning and control, will teach two sections of the same course. Charles K. Twohey, systems and procedures analyst, will teach Management Information Systems.

Courses taught by Dragila, Martin, Schwend, and Twohey will be conducted evenings at the Kearny Mesa plant.

In the engineering curriculum George H. Burgin, design specialist, will conduct a course on Nonlinear Differential Equations in Engineering; Raymond A. Elliott, design specialist, Introduction to Computing Systems; Alan W. Nelson, advanced systems dynamics group, Introduction to Control Systems; Theodore Rubin, design specialist, Probability and Stochastic Processes for Engineers; Allan N. Wilson, design specialist, Computer Applications: Ordinary Differential Equations.

William J. Sevier, senior design engineer, will be coordinator of Mechanical Engineering Review with David R. Lukens, Convair dynamics group engineer, and John O. Tearnen, General Atomic staff member, instructing.

H. R. Lukens, General Atomic staff member, chemistry department, and Lloyd R. Zumwalt, General Atomic senior scientist, will instruct Radio Isotopes in Engineering.

James F. Haskins, Convair chief of material research, will teach Advanced Engineering Mathematics; and Rubin, a course on Probability and Statistics in the Mathematics section.

Data Products Pair Honored by UAIDE

Helen Wood and Dennis Brending of Stromberg-Carlson Data Products received special recognition for their efforts in support of UAIDE (Users of Automatic Information Display Equipment) at a recent board meeting in Los Angeles.

Helen Wood, in charge of S-C advertising and public relations at Data Products division, has handled publicity for UAIDE since its formation four years ago, while Brending, S-C Southwest district sales manager, has provided administrative liaison between S-C and the UAIDE organization.

UAIDE is made up of industrial users of the S-C 4020 Computer Recorder, high-speed computer output system which records alphanumeric and graphic data on microfilm.

Prim to Discuss Electronics Status

All salaried people at Electronics - SD will have a chance to learn the future of the operation tonight (Feb. 9) when Don C. Prim, general manager, gives a "state of the nation" talk to Electronics Management Club.

Prim will outline "Where We Have Been, Where We Are, Where We Are Going."

The dinner meeting will be at Stardust Hotel. Social hour starts at 6 p.m., dinner at 7.

Insurance Changes Outlined in Booklet

New booklets outlining Convair division's group insurance plan for hourly employes, incorporating changes which became effective Oct. 11, will be available at employe services offices at both plants tomorrow, Feb. 10.

Hourly people at Kearny Mesa may obtain booklets from a special table outside the Bldg. 8 employe services function. Those at Lindbergh Field may get theirs from employe services counter in Bldg. 16.

A. L. Ratz Will Head New San Diego Group

A. L. Ratz, Convair supervisor of Lindbergh Field material control, will lead the newly-formed American Production and Inventory Control Society (APICS) chapter in San Diego through its organization stages as president.

He heads a slate chosen by 35 production and inventory control people from San Diego companies, including eight from Convair's operations, at the group's formation Jan. 21-22. Other officers are Dr. Glen Hodge of San Diego State College, vice president; Jerry Netland of Solar, secretary; and C. L. Atkinson, Digital Development Corp., treasurer.

Organization of an APICS chapter in San Diego will help advance professional skills, giving members a better insight into the modern philosophy and concepts of scientific management.

Meetings will be the third Wednesday of each month. Next is Feb. 16 at Wickersham's Restaurant, 5225 Kearny Villa Road. Social hour is at 6:30 p.m., dinner at 7.

Interested Convair people may call Ratz, home phone, 582-6788, or Roy Eastberg, 466-4929.

Reservists Offered Evening Courses At Training Center

General Dynamics employes in the San Diego area who are members of military reserve units may enroll in college-level training courses offered beginning tomorrow (Feb. 10) by the Naval Reserve Officers' School at the Naval Reserve Training Center, Harbor Drive and Lowell Street.

Spring semester courses in PERT (program evaluation review technique) and public relations will be held 7:15 to 9:15 p.m. Thursday evenings through June 30.

R. G. Stoklosa, senior design engineer in Convair's Dept. 962-5 and a USNR lieutenant commander, will teach the PERT course. Emory Thurston of Convair's educational services office, also a USNR lieutenant commander, will teach public relations.

Ross A. Evans, Convair personnel administration manager and a USNR commander, is commanding officer of the Naval Reserve Officers' School.

Information on registration for the classes can be obtained by calling YN1 John T. Scott, personnel administrator, at 222-6411, ext. 387.

Remember! Disneyland, March 26!

Hansen Cites Fifteen For Cost Cutting Ideas

Commendation certificates have been presented to 15 Convair salaried employes for cost reduction and value control projects audited during the fourth quarter last year that will save the Convair division a record $1.5 million. Savings for the quarter boosted the total for the year to $3 million.

O. C. Priest of Dept. 964-0 received special commendation from Grant Hansen, vice president-launch vehicle programs, at the presentation ceremonies for having implemented improvements that will save the division $704,916.

As the result of one of Priest's suggestions, a new engineering order form has been placed in use that permits changing a detail drawing. This is expected to eliminate more than 33 per cent of the engineering change notice activity and save the company $423,292.

Engineering manhours are being conserved as a result of another of Priest's suggestions, that bills of materials be machine printed instead of hand prepared, a proposal expected to save $65,-678.

Priest also teamed up with L. A. Del Casale of Dept. 988-4 on a joint project expected to save $431,892, under which usage data on drawings is eliminated and existing Centaur engineering assembly parts lists used for next assembly and usage information.

J. F. Good of Dept. 972-0 received certificates for six projects approved during the quarter with total audited savings of $207,100.

One of Good's suggestions, which has changed the manner in which launch vehicle nose fairings and payload adapters are packed for shipment to the Eastern Test Range by air, is expected to save $146,458.

Good's other cost-saving proposals were for more frequent return of empty gas cylinders to reduce holding charges, painting instead of constant cleaning of machined edges of Centaur handling adapters, an improvement in production methods saving time in processing and installing radiation shields, reworking of a nose fairing dolly and use of a different trailer for moving the Centaur vehicle from the dock for pressure tests.

Hansen commended the 15 men receiving certificates for their efforts, which exceeded the Centaur project's cost reduction and value control goal for the quarter by 73 per cent and bringing the total for the year to 9 per cent above goal.

He also noted that "Operation Underbrush" efforts by Centaur personnel had resulted in 296 file cabinet drawers being purged of 19,000 pounds of unneeded paper and 29 five-drawer file cabinets being declared surplus.

Others receiving the certificates of commendation, their departments and amount of savings are:

W. P. Shine, Dept. 962-1, intangible; R. M. Mitchell, Dept. 964-4, $196,680; R. D. Lytwyn, Dept. 967-2, $4,325; H. J. Luxford, Dept. 951-6, $92,442; J. S. Luster, Dept. 967-3, $12,792; G. F. Lahey, Dept. 964-3, $28,860; V. E. Distad, Dept. 970-1, $34,-784; W. E. Crow, Dept. 970-1, $19,216; D. B. Carson, Dept. 964-2, $14.328; C. L. Baker, Dept. 974-4, $83,067; C. E. George, Dept. 978-4, $4,522, and E. J. Hujsak, Dept. 962-1, $43,472.

Contract Calls For Building 35 Instrumentation Systems

Convair division has been awarded a $1.6 million contract to design, fabricate and test 35 instrumentation systems for use on modified Atlas E and F launch vehicles.

The division successfully competed among 54 qualified bidders for the fixed-price contract, which is with the Air Force's Ballistic Systems Division for use in the ABRES (advanced ballistic reentry system) program.

The new instrumentation system is called AIRSS (ABRES instrumentation and range safety system). It updates the old Atlas instrumentation system and includes state-of-the-art, solid-state electronic devices.

Telemetry sets with their transducers and range safety systems will be used to transmit in-flight Atlas systems information to the ground for post-flight analysis and will also enable the Air Force range safety officer to terminate powered flight or destroy the vehicle if necessary.

An on-the-job training program for two Air Force crews will be conducted to insure proficiency in operation, checkout and maintenance of the new equipment.

Acceleration and altitude tests of the telemetry set will be accomplished on the CEVAT centrifuge at Kearny Mesa with acoustical tests in Lindbergh Field facilities.

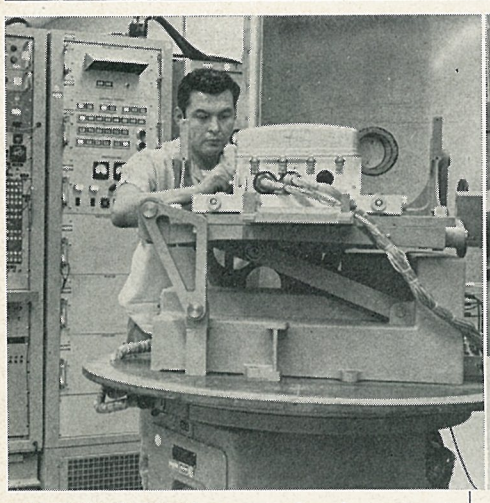
Factory support equipment, including detail tools and a portable test set, will be manufactured by Convair.

Frank J. Gaffney of Dept. 950-9 is program manager. Hal Pietsch of Dept. 963-9 is in charge of design engineering, assisted by Rule Weas, Dennis Williams and Jim DePriest. Judd Giesenschlag is responsible for systems management, Robert Neaves for production.

The contract provides for both performance and delivery profit incentives. First of the systems is slated for July or August delivery.

Feb. 19 Season's First Swim Night

First swim night of the season for General Dynamics people will be Saturday, Feb. 19, 7-9 p.m., at Mission Beach Plunge. Free tickets are available at all employe services outlets at Convair plants, Stromberg-Carlson, and Electronics, and CRA Clubhouse, Kearny Mesa. Open swim nights will continue on the third Saturday night of each month until next fall.



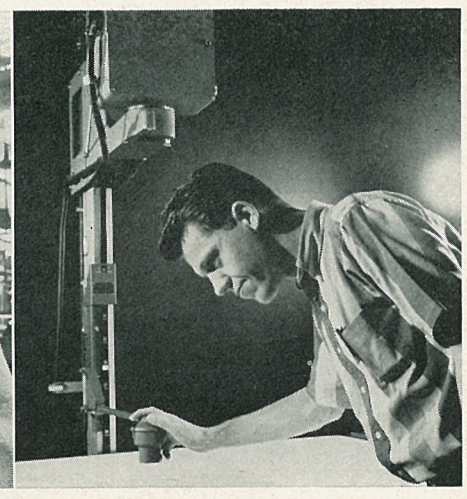
Kenneth Ponchetti, an engineering support Dept. 756-0 electronic development technician, works in a Dept. 578-4 guidance and control test laboratory in Bldg. 4 at Convair's Kearny Mesa plant. He is shown checking a Centaur rate gyro unit on a multi-mode test table, which rotates while in actual test use. The unit being checked contains three gyroscopes to sense the vehicle's pitch, yaw and roll. Ponchetti is a native of San Diego County, having been born and reared in Julian. After graduating from Julian High in 1956, he served in the Air Force for four years with duties as a basic electronics theory instructor at Keesler AFB, Miss., at a transmitter site at Travis AFB, Calif., and at a receiver site at Thule AFB, Greenland. He is married and lives in Poway and has been a Convair employe five years. He enjoys hunting and fishing and attends a physical education class two nights a week at Poway High.



John Tyler is rounding out his 14th year in mail distribution at Convair. He makes runs to the downtown post office for pickup and delivery and inter-plant runs a couple of times a day between Lindbergh Field and Kearny Mesa, also servicing the Harbor Drive Test Site, General Atomic facility at the seaplane ramp, and other sites. His responsibilities have include recording and delivering outgong and incoming registered, certified, and insured mail and maintaining records. Before coming to San Diego, Tyler was a parts clerk at the Ford Co., Wharton, Texas. His wife, Vera, is a cashier at San Diego High and active in Southeast San Diego civic groups. Both John and Vera devote a great deal of their time to the Southeast Poverty Council, which Vera serves as secretary and personnel manager. They have three daughters, Gloria, 16; Joyce, 15; and Barbara, 13. Gloria is songleader and Joyce, cheerleader, at Lincoln High.



Wanda Holmes now is the only woman in Lindbergh Field sheet metal to operate a power brake, forming small parts of aluminum, steel, or titanium. In a single day she can bend 10,000 brackets or clips of the type she was forming when this shot was taken. She learned to operate drills at North American in Kansas City during World War II days. Since moving to San Diego and joining Convair in 1947 she has been in sheet metal all of the time since, working on drills, burr bench, and power brakes. Her husband, Jim, now with Pre-Mix Concrete Co., worked in Convair final assembly during F-102/106 and Convair transport programs. They enjoy frequent trips to the desert in their camper, towing their sand buggy for side jaunts. In fact, they spent the New Year's weekend in Imperial Valley rendezvousing with a group of equally enthusiastic desert devotees — an annual occasion. During summer months they attend sports car races.



Bill E. Phillips, a microfilm cameraman in Dept. 125-0, has been employed in Convair's microfilm center in Bldg. 4 at Kearny Mesa since it opened more than two years ago. The device he is shown moving with his hand measures background density of 11 by 17-inch drawing that will be recorded on a 1 by 2-inch film area. Phillips, a native of Arkansas, is a former Navy yeoman who decided to make his home here after tours of duty at the North Island Naval Air Station and Camp Elliott. He lives with his wife, Toni, and a year-old daughter, Christi, in Pacific Beach and attends classes at night at Mesa College where he is enrolled as a business major. Phillips bowls frequently at Pacific Beach Bowl and enjoys playing handball and tennis. The camera he operates at the microfilm center is a Recordak C-4 microfilm camera. Most of the work involves reducing large-size engineering drawings onto microfilm.

LIEB INSTALLED BY TOASTMASTERS

Thomas Lieb, a senior reliability engineer in Convair Dept. 984-4, has been installed as president of Dynamic Toastmasters No. 457 for the first six months of 1966.

Other new officers are Edward Schwartz of Dept. 584-2, educational vice president; Eric Makela of Dept. 984-4, administrative vice president; Ezra Johnson of Dept. 420-1, treasurer; Robert Welk of Dept. 758-0, secretary, and Dave Hawk of Dept. 553-3, sergeant at arms.

Members meet at 5:15 p.m. each Thursday in CRA Clubhouse. Membership is open to all GD employes in the area.

Call Makela, KM, ext. 1320, for information.

Science Majors See High Speed Tunnel

A group of science majors from San Diego State College saw General Dynamics' high speed wind tunnel in operation last week during a tour sponsored by the Convair Management Club.

The students, all members of the college's chapter of American Institute of Aeronautics and Astronautics, visited the facility at Convair's Harbor Drive Test Site the afternoon of Feb. 1. Dave Cumming, high speed wind tunnel supervisor, explained the facility's capabilities, operation, and described a basic research test then in progress.

The visit was arranged by Larry Hayes and Jack Yonke of the club's community relations committee.

Convair Men Active In 'Whaling Days'

Two Convair division employes, Warren Johnson of Dept. 592-0 and Arlan D. Barber of Dept. 578-5, played key roles in Old Town's "Whaling Days" activities Feb. 5. Both are members of the Tourism Committee of the San Diego Junior Chamber of Commerce which sponsored the event.

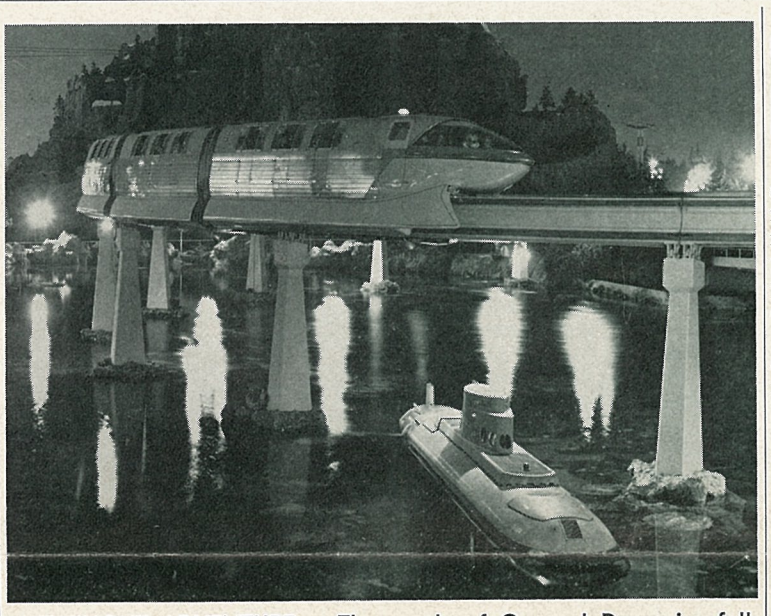
"Whaling Days" activities included baton twirling, costume and beard contests, a "whale of a show" in the afternoon, and a 75-unit torchlight parade and dancing in the street during the evening.

Horsemen to Hold Fun Show on Feb. 20

Convair horsemen will hold an all-day Fun Show Sunday (Feb. 20) at CRA ring.

Equitation events, which start at 8:30 a.m., will be judged by Bob Riding (Dept. 836-1), Morgan horse breeder and trainer.

The afternoon will be given over to gymkhana competition. Bob Spencley is show manager.



TWILIGHT ADVENTURE — Thousands of General Dynamics folk and their families are expected to attend special party at Disneyland in March. Above is lagoon scene (submarine sponsored by GD) with Matterhorn in background.

Ticket Sale Begins For Disneyland Trip

Tickets for General Dynamics' big five-hour family party at Disneyland on March 26 go on sale this week at all CRA outlets and from Management Club boosters.

Price admission has been reduced to $3.50 per person. Admission charge will cover all Disneyland attractions with as many rides on each as desired during the 8 p.m. to 1 a.m. party. All tickets must be purchased prior to the event.

Buses will leave the Kearny Mesa plant at 6 p.m. for those desiring such transportation. Fare will be $2.25 per person.

Bob Emerson, planning committee chairman, said relatives and friends of General Dynamics employes are welcome.

Three Pairs Repeat Winners in Bridge

Three couples were double winners in Convair Bridge Club tournaments during January.

Howard and Ceil McCullough were North-South victors Jan. 7 and 14. Ed Lou and Francys Darr were East-West champions in Jan. 7 monthly master point competition and won again in the Jan. 28 special event.

Jo and Tony Miller led North-South pairs on Jan. 21 and 28 East-West winners on Jan. 14 were Ralph and Isabel Emerson and on Jan. 21 were Jim Williams and Bernie Blutinger.

Monthly master point tournaments are scheduled for Feb. 11 and March 4.

Remember! Disneyland, March 26!

Servicemen Visited In Off-Duty Project

Steve Persley, night shift missile mechanic in Convair Dept. 972-0, Kearny Mesa, spends part of his off-duty each week at the Naval Hospital, visiting servicemen wounded in Viet Nam.

For Persley, a Convair employe for nine years, the visits are a continuation of an avocation that began when he visited wounded servicemen from 1942 to 1945 in Brooklyn.

He recently collected $25 from fellow employes and has used it for purchasing playing cards and games.

Persley now is collecting used electric razors and radio and television sets to give to servicemen. He said he can accept electric razors that are not in working condition, but that donated radio and TV sets should be in service.

Employes wishing to contribute can phone Persley at his home at 582-8329 between 9 a.m. and 3:30 p.m. on weekdays. He can be reached at the plant by a direct line, 277-1961, after 6 p.m.

Con-Trib Donations Of $5,250 Approved

Donations of $5,250 were approved for four charitable organizations, two at Cleveland, Ohio, by the Convair Employes' Con-Trib-Club committee at the first meeting of the year, Jan. 6.

Erie County United Fund received $100 and the NASA Christmas Club, $400, on behalf of Convair employes based at the Lewis Research Center, Cleveland. San Diego County Chapter of the National Foundation was voted $3,000 for the annual March of Dimes. Big Brothers of San Diego County will receive $1,750.

Candidates Sought For Convair Doctoral Study Fellowships

March 7 is deadline for filing applications and supporting material for Convair doctoral study fellowship awards for the school year beginning in September. Application forms are available at educational services.

Convair division each year awards one or more fellowships for doctoral studies in engineering or related sciences. The fellowships pay $400 per month for each school month to a maximum of $4,000 per year.

Each fellowship is granted for one academic year and may be renewed annually upon evidence of satisfactory performance. Full-time summer employment is required unless the Fellow continues studies during the summer or is otherwise excused.

Each candidate qualifying for an award must have been a Convair division employe for a year, must have a master's degree or the equivalent and must submit a letter of acceptance for doctoral study from an accredited institution.

Transcripts of college grades and letters of recommendations from supervisors and previous college instructors also are required. Further information can be obtained by calling Emory W. Thurston of educational services at the Kearny Mesa plant, ext. 1931.

The annual fellowships are funded and administered by Convair division. A committee reviews all applications and selects recipients based on its judgment of job performance, seniority, previous academic achievement, the school to be attended and the field of doctoral work.

Employes granted the fellowships are placed on advanced degree scholastic leave and must supply educational services with transcripts and progress reports at the end of each semester or quarter. Doctoral degrees ordinarily require three years study.

Currently studying for doctoral degrees under Convair fellowships are Jack F. Ingber, Archibald Gay and Kenneth L. Montgomery.

Ingber is now in his first year of study for a Ph.D. in engineering at the University of California at San Diego. He received his B.A. in math from Rutgers and his M.A. at the University of Oklahoma.

Gay has a special interest in gas dynamics and is in his second year of study for a Ph.D. in engineering in the Department of Aeronautics and Astronautics at the University of Southampton, England. He had undergraduate work at the Royal College of Science and Technology at Glasgow, Scotland, and got his M.S. in engineering at UCLA.

Montgomery, now in his second year at the University of Pittsburgh, is studying for his Ph.D. in information services. He has a B.S. in math from Rockhurst College in Kansas City, Mo., and an M.S. from the University of Kansas.

Convair Man Earns High Scout Award

Convair's Wayne McDaniel (Dept. 041) at Lindbergh Field plant was one of 11 men receiving the Silver Beaver Award, highest honor conferred on adult volunteer leaders, from the San Diego County Boy Scout Council for his long years of service. The presentation was a forerunner to National Boy Scout Week, Feb. 7-13.

McDaniel, a Convair employe since 1940 and now an assembler in the C-141 elevators section, has taken an active part in scouting for 17 years. His son, Ralph, 15, is a Life Scout, and his daughter, Elizabeth, 17, is a Girl Scout.

Girl Golfers to Play Mission Bay Course

Feminine golfers will play the Mission Bay golf course in GD Women's Golf Club's monthly tourney this Saturday, Feb. 12. Tee-off time is 8 a.m.

All GD women are invited to participate in the club's activities, Margaret Clark, club president, said. Anyone interested may call Ora Carpenter, membership chairman, home phone, 223-6095.

TROPICAL FISH CLUB TO ELECT

The Convair Tropical Fish Club will elect officers for the coming club term at the regular monthly meeting next Monday, Feb. 14 at 7:30 p.m., in CRA Clubhouse, Kearny Mesa. All members are urged to be present.



Flight Control Wins 1st Half

Flight Control took first-half title of CRA's shop basketball league after downing IBJOB boys 61-43 in a play-off tilt Jan. 26. Both ended first-half play tied with 5 wins and 1 loss.

Flight Control dropped its only game to Underbrush and IBJOB had lost to Commandos.

The hoop league went into its second half last week with IBJOB meeting 595, GASP vs. Underbrush, and Flight Control vs. Commandos on Wednesday evening. Comets played the Dragons Saturday morning.

Tonight's (Feb. 9) games will match 595 and Underbrush at 6:50 p.m.; IBJOB vs. Commandos at 7:55; Flight Control vs. Dragons at 9. GASP and Comets will play Feb. 12 at 10 a.m. All games are played in Balboa Park's Muni Gym with spectators welcome.

FIRST-HALF STANDINGS

Team	Won	Lost
Flight Control	6	1
IBJOB	5	2
Commandos	4	3
Comets	4	3
Underbrush	3	4
GASP	3	4
Dragons	2	5
595	1	6

OPENINGS REMAIN FOR BIG BEAR TRIP

A few openings still remain for GD people who would like the fun of a weekend in the snow on the annual Winter Weekend at Big Bear Lake, Feb. 18-20, Bud Davies, CRA Ice Skating commissioner, said.

Davies urges all late-comers to sign as soon as possible since reservations are taken on a first-come bais. Reservations may be made through CRA Headquarters, ext. 1111, Kearny Mesa.

The annual trip is open to all GD employes, whether members of the Ice Skating Club or not. A wide variety of winter sports and activities is planned. Cost of two nights' lodging at Wawona Lodge and three meals is $12 for adults and $6 for children under 8.

For information call Davies, ext. 2751, KM, or Joan Kosen, 274-5227.

Adventurers to See Jungle River Slides

CRA Adventurers and their friends will see slides of a recent 110-mile Usumacinto River expedition along the Mexican-Guatemalan border at the Feb. 16 meeting, 7:30 p.m., in CRA auditorium, Kearny Mesa.

Shots were taken by Convair's Jim Baker during an 8-day jungle voyage by neoprene boat. All people and supplies had to be airlifted to the remote area.

Convair Adventurers will take an overnight back-pack outing Feb. 19-20 to In-Ko-Pah Mountain north of Jacumba where they will explore Carrizo Gorge. Larry Lesh is trip leader. Joe Quijada, ext. 2746, KM, or home phone, 284-0883, is taking sign-ups and giving details.

Coineers to Meet; Pledge Many Prizes

CRA Coineers will center their displays around U. S. presidents at the Feb. 16 meeting, 7:30 p.m., Convair cafeteria, Pacific Hwy.

Officers will be chosen for 1966 and the usual auction and raffle held.

There will be prizes for lucky ticket-holders with five 1963 proof sets as prizes for members only and two $5 gold pieces, one an 1880-S and the other an 1885-S, plus a Capitol plastic coin holder for Roosevelt dimes in the raffle. All attending will get a "give-away" coin.

ROCKHOUNDS PLAN TRIP AFTER JADE

CRA Rockhounds will travel to Storm Jade Mountain Feb. 19-20. Details will be available at tonight's (Feb. 9) meeting, CRA auditorium. The meeting will be preceded by a 6:30 p.m. potluck dinner.



GOLFING GALS — Front row, Vi Gilbert, Flight B winner, and Jean Mishall, Flight A winner, hold trophies presented by Margaret Clark, club president, for low scores in January tourney of GD Women's Golf Club. Standing are, from left, Iris Oster, Jo Ann Kranz, Ann Gagnon, Ora Carpenter, Betty Liddell, Florence Kell, Mae Snell, Arlene Nelson, Joy Ward, Clara Granat. Next tourney is Feb. 12 at Mission Bay course.

CRA Calendar

(For information on CRA activities call CRA Headquarters, Kearny Mesa, ext. 1111. Deadline for copy for the next issue of GD/NEWS is noon, Feb. 16. Call ext. 3322, Kearny Mesa, or ext. 1071, Lindbergh Field.)

★ ★ ★

ADVENTURERS — Meeting Feb. 16, 7:30 p.m., CRA Clubhouse. Weekend back-pack trip to Carrizo Gorge Feb. 19-20.

BADMINTON—Play Mondays, 7-10 p.m., Federal Bldg., Balboa Park.

BASKETBALL — Shop league play Wednesday evenings and Saturday mornings, Muni Gym, Balboa Park.

BRIDGE — Play each Friday evening, 7:30 p.m., CRA Clubhouse, Monthly Master Point night Feb. 11.

CAMERA CLUB — Meeting Feb. 20, 7:30 p.m., Photo Arts Bldg., Balboa Park.

CERAMICS—Instruction Tues., Wed., Thurs. evenings, 7:30-10:30 p.m.; Wed. morning, 10 a.m.-1 p.m., CRA Clubhouse.

CHESS — Play each Wednesday, 7:30 p.m., CRA Clubhouse.

COINEERS — Meeting Feb. 16, 7:30 p.m., Convair cafeteria, Pacific Hwy.

DELTA DIVERS — Meeting tonight (Feb. 9), 7:30 p.m., CRA Clubhouse.

FENCING — Workouts and instruction Fridays, 7:30-10:30 p.m., YWCA, 10th & C Sts.

FISHING CLUB — Meeting Feb. 16, CRA Clubhouse. Potluck at 6:30 p.m., business session, 7:30 p.m.

GOLF—CRA tourney Feb. 26-27, Bonita Valley. Call ext. 1111 for starting times before Feb. 18. Women's Golf Club tourney Feb. 12, Mission Bay.

HEALTH CLUB — Children's gymnastic classes start Feb. 19, CRA auditorium. Call ext. 1111, KM.

ICE SKATING — Annual Winter Weekend to Big Bear Feb. 18-20. Call Bud Davies, ext. 2751, KM. GD skate night Thursdays, 6:15-7:45 p.m., Mission Valley Ice Arena.

JUNIOR RIFLEERS — Meeting Feb. 16, 7:30 p.m., CRA Clubhouse. Shoot Feb. 19, 8 a.m., CRA Gun Club Range.

JUNIOR SCIENCE — Meeting Feb. 18, 7:30 p.m., CRA Clubhouse.

MOVIES — Reduced prices for GD people at State Theater, Euclid and El Cajon Blvd. General admission: adults, $1; children, 35¢.

PISTOL CLUB — Shoot Feb. 13, 9:15 a.m., SD Police Pistol Range, Federal & Home Ave.

RADIO CLUB — Meeting Feb. 17, 7:30 p.m., Harbor Drive club headquarters.

RIDING CLUB — Meeting tonight (Feb. 9), 7:30 p.m., CRA Clubhouse. Fun Show Feb. 20, CRA horse ring.

ROCKHOUNDS — Meeting tonight (Feb. 9), 7:30 a.m., CRA auditorium. Field trip to Storm Jade Mt., Feb. 19-20.

ROLLER SKATING — Free skate night Feb. 21, Skateland, Front & G Sts. Tickets at employe services outlets.

SCULPTURE — Workshop sessions Mondays, 7:30-10:30 p.m., CRA Clubhouse.

SKEET—Registered skeet shoot 9 a.m., Feb. 12 and 13, Gillespie Field Gun Range.

SPORTS CAR CLUB — Meeting tonight (Feb. 9), 7:30 p.m., Convair executive dining room, Pacific Hwy.

SWIM NIGHT — First monthly swim Feb. 19, 7-9 p.m., Mission Beach Plunge. Tickets at employe services.

TOASTMASTERS — Meetings each Wednesday, 4:15 p.m., CRA Clubhouse. Call D. R. Nash, ext. 2059, KM, or Jim DeShazo, ext. 2056, KM.

TOASTMISTRESSES — Serra Mesa Toastmistresses meet first and third Mondays, 7:30 p.m., CRA Clubhouse.

TROPICAL FISH — Election of officers Feb. 14, 7:30 p.m., CRA Clubhouse.

WIVES — Buffet luncheon at Sands Hotel Feb. 16. Call Sue Cavanagh, 279-1633, or Lou Nordeck, 273-1140, for reservations. Monthly potluck Feb. 23, CRA Clubhouse.

Next Golf Tourney Will Be at Bonita

Entries open today (Feb. 9) for CRA Golf Club's next links tournament, the last weekend of this month, Feb. 26-27, at Bonita Valley CC, Commissioner Ken Wulfemeyer said.

Linksmen have until Feb. 18 to reserve starting times. Call CRA Headquarters, ext. 1111, KM.

Children's Gym Classes Planned

Gymnastics classes for children of GD employes in the San Diego area will be held Saturdays for 14 weeks beginning Feb. 19 in CRA auditorium at Kearny Mesa.

Children between the ages of 5 and 14 years will be eligible. Pat Lamoureux of CRA health club staff will instruct. There will be an enrollment fee of $6 for the first child and $3 for each additional child in the family.

At the initial meeting at 10 a.m. Feb. 19, children will be divided into beginning, intermediate and advanced groups. Subsequently, beginners will meet at 10 a.m., intermediates at 11 a.m. and advanced at noon.

Tumbling, instruction on the parallel bars and free exercise (poses, stunts, etc.) will be included. For information, call KM, ext. 1111.

16,000 Targets Thrown During Gun Club Shoot, 80 Competing

CRA Gun Club's first registered shoot of the year went off with a bang—in fact, lots of them—with one of the largest turnouts of shooters in club history.

Last of the 80 contestants weren't off the firing range until 5 in the evening of the Sunday event, Jan. 23, said Commissioner Jack Swank, who with his wife and daughter conducted the ATA registered event. Around 16,000 targets were thrown and 36 new members were signed for ATA yearly memberships.

The 16-yd. event drew 71 entries; 53 competed in handicap; and 10 in doubles. Cash prizes went to first and second places in all classes.

A. T. Higginbotham of National City was first in 16-yd. Class A with a score of 98. Russ Palmer of San Diego was runner-up with 95.

Class B—Don Estes, Lakeside, first, 99; Eugene Moon, second, 97.

Class C—Reese Jones of San Diego and Gene Coplin of Chula Vista tied with 96s.

Class D—Vern Cline, National City, first, 93; Ellis Rhodes, San Diego, second, 91.

Class E—Ed Thompson, San Diego, first, 95; Tom Santry, San Diego, second, 90.

Edna Gatterman of San Diego shot a 91 for first place in the combined lady-junior division.

In handicap Tony Scuderi of Escondido was high man in the 19-20-yd. group with a score of 93. John McCully of Coronado was runner-up with a 90.

Jim Prewitt of Spring Valley topped the 21-22-yd. group with a 95; Higginbotham was second with 84. Joe Chilton of San Clemente and Estes tied with 89s in the 23-27-yd. group.

Jim Fraser Jr., of San Diego bested the other contestant, Wayne Wright of Holtville, to win high junior spot in handicap.

Chilton won first place in doubles with 85 and Estes and Dick Williams of Anaheim tied for second with 83s.

Convair Men Heading Balboa Bldg. Drive

Two Convair men, well-known in gardening circles, are heading a public fund-raising drive for a $1 million garden center building in Balboa Park which recently received approval of the San Diego City Council.

Virgil N. Schade of Dept. 031 and a long-time CRA Garden Club member and Everett Henderson (Dept. 193-3), Garden Club commissioner, hold top posts on the San Diego Botanical-Garden Foundation, Inc., responsible for the drive.

The drive to construct the building, probably on the present site of the Food and Beverages Bldg., culminates two years of effort by garden organizations.

Fish Club Will Hold Awards Night Feb. 16

Awards will be given to winners of CRA Fishing Club's January contest, as well as button winners for 1965 in Southwest Anglers' Association yearly competition, at the Convair group's Feb. 16 meeting, 7:30 p.m., CRA Clubhouse, Kearny Mesa.

Guy Himes placed first in the monthly contest with a 8-lb., 10-oz. bonita. N. B. Koffenbarger was second with a sheepshead weighing in at 12 lbs., 5 oz. Each will receive a Rodomatic 510 reel.

Button award winners are C. B. King, marlin; D. F. Kline and C. T. Boyle, albacore; Boyle, halibut; Larry Thrall, salmon; Himes, large mouth bass and bonita; Carol McDaniels, bonita; R. E. King, yellowtail.

WIVES CLUB PLANS BUFFET LUNCHEON

Convair Wives Club will nominate officers for the coming club year at the Feb. 16 luncheon in the Flame Room of Sands Hotel.

Slate will be presented by the nominating committee, Jeanne Jones, Helen Ramberg, Kay Schroeder, Kathy Stoker, and Lucille Goodall. Election will be next month and installation in April.

Marshia Reed, home economist with Helm's Bakery, will give pointers on "Easy Entertaining" and give a $5 gift certifiacte as door prize.

Jean Grugel and Shirley Jensen are hostesses for the noon buffet which will follow a social hour. Luncheon price is $2.25, including tip and tax. Reservations are being taken now by Sue Cavanagh, 279-1633, and Lou Nordeck, 273-1140.

Coming events for the club include a performance of young musicians in CRA auditorium, Saturday, Feb. 26. Wives are cosponsoring with the San Diego Junior Musicians Association. The club's monthly potluck will be Feb. 23 in the clubhouse.

Sports Drivers Defy Rain During Rally

A driver-navigator team representing the San Diego ARC Rally Team, Larry Crumb and Sam Hobbs, drove their Alfa sedan over the 95-mile course to first place in CRA Sports Car's Photorama 7 Rally Jan. 30 with only 2.11 minutes error.

In spite of a pouring rain which washed out a section of road in one leg of the course, 120 of the 165 entries completed the entire route. Official running time was two hours, 28 minutes.

Convair drivers finishing among the first 20 were Howard Abraham, 17th, with 5.27 min. error, driving a Mustang; and Art Mason, 18th, with 6.08 min. error, driving a TR-3.

Junior Rifleers Help Championship Team

Three members of the Junior Rifleers—John Dawson, David French and David Farrelly Jr.—were on a five-man Madison High School ROTC team that took team championship honors in the 13th annual UCLA invitational high school gallery tournament Jan. 22. Each received an 18-inch trophy and a shooting coat.

Dawson won the high individual trophy and an Anshutz target rifle valued at more than $200.

Coach Dave Farrelly Sr. of Convair's Dept. 572-1 said the UCLA win was the third in three months for the boys in competition against top junior shooters from throughout Southern California.

Remember! Disneyland, March 26!

Use of Health Club Facilities Opened To Non-Employes on Limited Basis

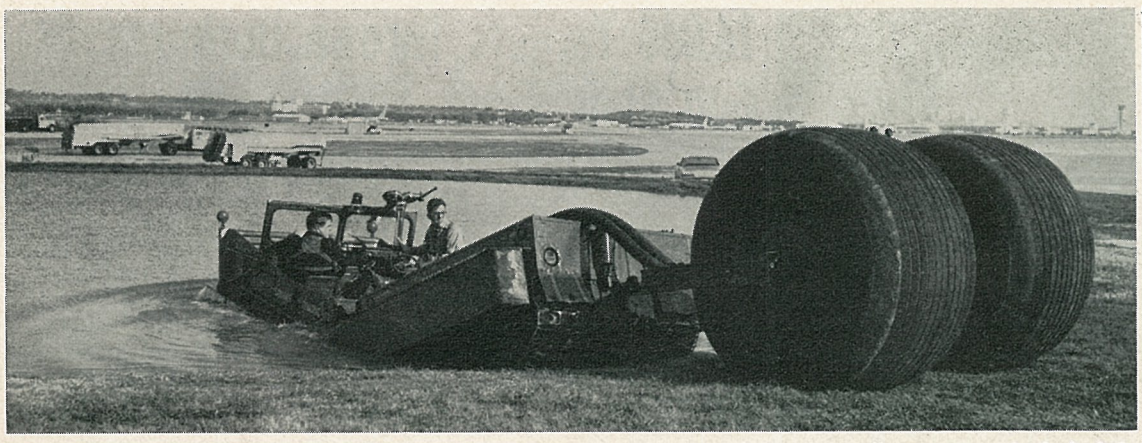
CRA Health Club facilities are now available for use by a limited number of friends of Convair families.

Annual memberships for non-employes will be $27 a year for individuals and $42 for families.

Family participation hours have been extended and now are from 11:30 a.m. to 10 p.m. weekdays and 10 a.m. to 5 p.m. Saturdays at the Kearny Mesa site.

GD families in the area who have been "planning to do something" about improving their physical fitness can still obtain a six-month trial membership. These are $12 for individuals and $18 for families.

Regular annual memberships for GD employes are $18 for an individual and $27 for the family.



AMPHIBIOUS—Addition of huge tires for carrying chemical-foam ingredients were included in conversion of Canadair Dynatrac to all-terrain fire-fighter. Designer Phil Cummins is at wheel, and Joseph Morley, Fort Worth division Dept. 15-2, is co-pilot.

Canadair Dynatrac Modified at FW As Fire-Fighting, Rescue Vehicle

Imagine a fire-fighting and rescue vehicle that can swim a river, climb a mountain, or scamper through a swamp!

Such are the virtues of a new lightweight, all-terrain, go-anywhere unit developed by Fort Worth division.

Actually it's a modified Canadair Dynatrac, a personnel-carrier with tank-like treads designed to carry it through the densest mire. The main unit is powered by a four-cylinder Corvair engine, which also furnishes power for a second equipment-carrying unit.

To this basic structure Phil Cummins, Fort Worth's fire-fighting expert, has made some ingenious additions.

Lightweight fiber glass "floats," filled with styrofoam, were added to the front and sides of the units to give added buoyancy. Two giant tires—48 inches across and 52 inches tall—were then added as the third "link," along with necessary motors and plumbing needed to pump fuel to the turret up front.

One tire contains Chemical "A," the other Chemical "B." When the two are mixed, they expand at a 10 to 1 ratio, giving the vehicle an amazing 10,000 gallon capacity. This is 2,000 gallons more capacity than the Air Force's O-11A rescue truck.

If water is needed to fight the blaze, the vehicle has a potentially unlimited supply. It simply has to be hooked onto a fire hydrant. Or if there's a lake or stream around, it can use this source.

(Tires are filled nearly to capacity. The small air space left at the top enables them to float.)

Equipped thus, the modified Dynatrac can move to the rescue at 25 miles an hour on land and 4 miles an hour over water. But most important, it can traverse virtually any terrain to get to the problem area!

In demonstrations at Fort Worth division, for example, the vehicle has climbed 65 degree inclines, crossed 20-foot deep lakes, and raced across a quagmire. Like a light tank, it can push aside most obstacles, including trees up to four inches in diameter.

The second unit, which can be detached, carries all sorts of emergency equipment, such as radiation-detection and first aid equipment, rope, air-rescue material, food, water, collapsible tent and other materials.

"The second unit can be left at the scene of the accident, while the main unit moves around and helps where needed," Cummins says.

Cummins feels such a vehicle would be ideally suited to many military and commercial airfields, which are flanked by lakes and streams.

"And since the units are lightweight and easily transportable, they could be quickly airlifted."

Actually, the modified Dynatrac gives Fort Worth division a test bed for its futuristic air crash equipment (ACE), which is in the making.



COLOR WATCHING — Robert W. Dunkel (right) of Fleet Anti-Submarine Warfare School in San Diego rates nine colors of phosphor in cathode ray tube during experiments at Stromberg-Carlson's Data Products to select best color for display system. Dr. Alexis M. Anikeef (left) is directing S-C research.

Navy ASW School Grads Joining In Study of Reaction to Colors

Graduates of the U. S. Navy's Anti-Submarine Warfare School in San Diego are taking part in tests conducted by Stromberg-Carlson's Data Products division in a research project to determine the best phosphors for direct view displays to help radar and sonar operators keep alert over long periods of time.

Experiments in the Visual Presentation Research Program, as the project is known, are being conducted under direction of the Engineering Psychology Branch of the Office of Naval Research, Washington, D. C.

In first phase of the test, Navy technicians view the screen of a cathode ray tube divided into sections made with nine different colors of phosphor—red, blue, white, two shades each of orange, green, and yellow-green. They choose the color phosphor which they believe provides the clearest symbol and rate each color on whether it is comfortable to work with over a one-hour period.

Use of the S-C multi-color tube will make it possible for a target to change color as it moves from one part of the display to another, giving the operator a better chance to detect it. Test results will be used in design of future display systems.

Dr. James W. Miller, head of the ONR Engineering Psychology Branch of the Psychological Sciences Division is in charge. Dr. Richard Trumbull is director of the psychological division. At S-C, the program is under direction of Dr. Alexis M. Anikeef.

People Mobility

Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when inidviduals joined the company.)

JAMES P. WILSON (1957) from Convair to quality control engineer, Electronics, San Diego; **RICHARD TELLER** (1951) from Convair to electronics project engineer, Electronics, San Diego; **ROBERT A. BLACKBURN JR.** (1963) from Pomona division to senior production engineer, Stromberg-Carlson, Rochester; **BRUCE L. DOBLER** (1958) from Convair to Canadair; **A. JOAN LIGGETT** 1958 from Stromberg-Carlson to EDP programmer, Electronics, San Diego; **JAMES MINER** (1964) from Pomona to dynamics engineer, Convair; **WILLIAM O. BAMMER** (1959) from Pomona to Electric Boat (Groton).

★ ★ ★

JAMES W. DeSIMONE has been named patent counsel on the staff of Roger I. Harris, Corporate vice president and chief counsel. DeSimone received a BS in electrical engineering from University of Illinois and his Doctor of Law degree from DePaul University. For the past seven years he has been patent counsel for the IIT Research Institute (formerly Armour Research Foundation).

GD Gives $100,000 To Goddard Library

General Dynamics is among U.S. industrial firms that have pledged substantial sums to the Robert Hutchings Goddard Library being built at Clark University, Worcester, Mass., as a tribute to the late Dr. Goddard, pioneer American space and rocket scientist. The Corporate gift is $100,000.

When completed in 1968, the Goddard Library will become the permanent repository for Dr. Goddard's personal and professional papers and house the University's collection of some 275,000 volumes.

Satellite Simulates Solar Power in Orbit

Convair division is building a prototype solar array simulator power supply for delivery this month to NASA's Goddard Space Flight Center for use in laboratory testing of electrical systems of satellites.

When satellites are in orbit, their electrical systems normally receive their operating power from an array of solar cells that transfer light from the sun into electrical energy.

Clark M. Hay, program manager for Dept. 988-7, said the solar array simulator when plugged into a satellite's electrical system in the laboratory will provide power simulating that the satellite would receive in orbit.

Pete Marenholtz, electronics design specialist for the project, said the simulator essentially is a special purpose analog computer with a stimulus programmer.

The programmer includes an optical cam system in which a cathode ray tube is used to generate an electrical signal that rapidly follows a complex curve.

Marenholtz said the new simulator can duplicate solar array capacities up to 65 volts and up to 7 amperes. In-flight environmental conditions to be simulated will include variable sunlight and darkness periods with corresponding temperature changes and programmed illumination variations for rotational speeds of 1/100 to 100 revolutions per minute.

Hay said Convair in past years had developed less sophisticated solar array simulators for use in testing the ARENTS and SATAR satellites. "This gave us the background and knowledge needed as a base from which to develop the more sophisticated simulator now being completed," he said.

Frank Moebus created the initial conceptual designs and worked on proposal plans.

Barbara Smith, one of Convair's few women draftsmen, did most of the schematic designs for the simulator. Engineering test support was provided by Dept. 780 personnel.

Richard A. Bada of Dept. 780-2 was instrumentation lab technician and F. L. "Monte" Strickling of Dept. 988-7 assisted with package designs and as a coordinator for purchased parts. George Cooper of the analog computer lab assisted in development of special techniques.

Convair's Kotnik Cited by SAE

E. F. Kotnik of Convair division's 880/990 project office last month was cited by the Society of Automotive Engineers for his competent direction of a technical subcommittee which has contributed significantly to the field of aerospace electrical engineering.

"Kotnik's dedicated leadership, perseverance, and patience has enabled him to steer the System's Subcommittee of the Aerospace Electrical Equipment Committee through the extremely active nine years of its existence," read the Certificate of Appreciation awarded at an SAE Technical Board meeting in Detroit, Mich., Jan. 13.

The citation, presented by Technical Board chairman, Paul B. Beener of Caterpillar Tractor Co., went on to point out that under Kotnik's guidance the subcommittee had developed the single, most important electrical standard document in the aerospace electrical engineering field, MIL-E-7894, "Electric Power Systems Characteristics," now revised and currently identified as MIL-STD-704.

Marine Technology Papers Surveyed

As a General Dynamics scientist, engineer, or technician, have you authored a paper within the last six years for technical or lay publications that in any way deals with, or borders upon, any phase of marine technology? An index of such papers is being considered.

If so, please get in touch with your division industrial relations department, or GD/NEWS office.



SYSTEMS CHECKER — Richard Bada, left, instrumentation laboratory technician, and Pete Marenholtz, electronics design specialist, discuss optical cam to be used in solar array simulator power supply for use in checking electrical systems of satellites.

Consolidated Trainer, Built 36 Years Ago, Resurrected and Flown Cross Country

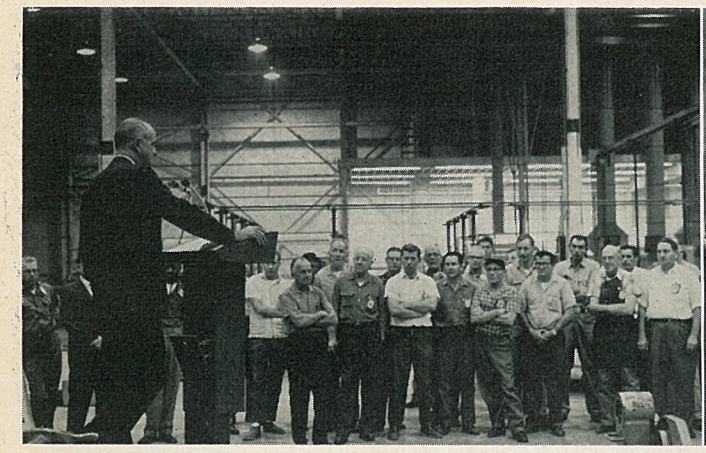
An open cockpit Navy trainer built 36 years ago by Consolidated Aircraft Corp. in Buffalo, N. Y., was resurrected to fly again last month 1,000 miles cross-country from New York to Kansas in 15-degree weather.

According to a recent issue of the Buffalo Evening News, which reported the feat, the 1930-vintage plane was found early last year, literally in pieces, in a barn near Ithaca, N. Y. It was rebuilt by a couple of private pilots with the help of an airplane mechanic.

E. E. Bode, a Kansas contractor and pilot, bought the reconditioned plane and, with the help of another Kansas pilot, flew it from Buffalo to the Midwest in mid-January. It took 14 hours and 10 minutes of flying time during three days to cover the same ground a jet speeds over in an hour and 40 minutes.

And it was cold! Bode wore wool pants, insulated hunting pants, a T-shirt, four sets of thermal underwear, two heavy sweaters, and a fur-lined parka.

Without a radio, the two intrepid pilots flew the plane at 500-ft. altitudes to navigate by highways and averaged about 40 miles an hour.





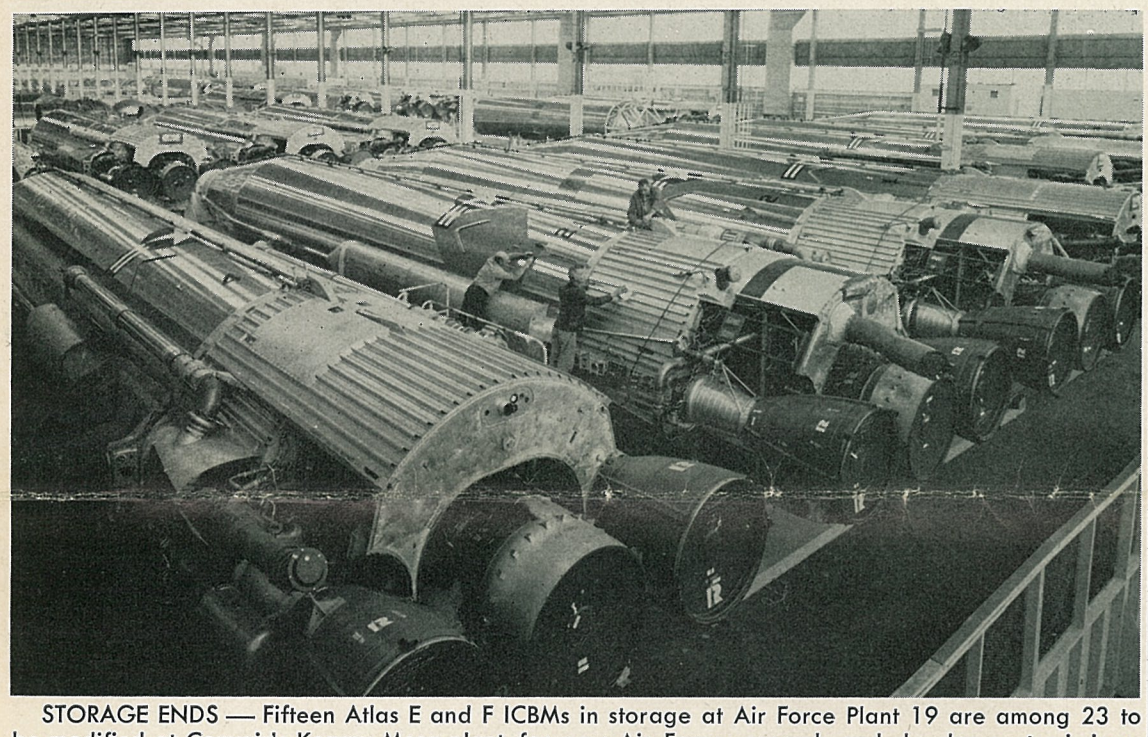


DECEMBER CRAFTSMEN — At left, Convair General Manager Jack L. Bowers commends Dept. 732, Kearny Mesa sheet metal, for winning Craftsmen-of-Month honors in December with 112.3 quality index and low rejection rate of .05. "Your record shows you understand the necessity for quality work," Bowers said in presenting award to H. L. Williams, assistant foreman. Dept. 732 had won award once before, in December, 1964. In shot at far right, Bowers congratulates Clarence Strand, Dept. 016 (electric bench) foreman at Lindbergh Field, for department's first win with quality index of 123.4. At far right in photo is Bob Ratliff, assistant foreman, with all 40 employes in background. Photo in center shows Strand and W. E. Magnuson, chief of special projects in reliability control, explaining Dept. 016 "Do Good Work" scoreboard to E. D. Bryant, vice president-operations, and Frank Blair, Lindbergh Field factory manager.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 19, No. 4 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, February 23, 1966



STORAGE ENDS — Fifteen Atlas E and F ICBMs in storage at Air Force Plant 19 are among 23 to be modified at Convair's Kearny Mesa plant for new Air Force research and development missions.

Contract Awarded For Refurbishing And Updating 23 E and F Missiles

Convair division has been awarded a contract for approximately $4 million to refurbish and update 23 Atlas Series E and F ICBMs for use by the Air Force Ballistic Systems Division in research and development flights.

A second contract for approximately $2 million was negotiated simultaneouly for conversion of Pad 1 at Vandenberg AFB for launch of the E and F configuration vehicles.

The Series E and F missiles were originally produced for use at Air Force bases throughout the country as part of the nation's strategic missile deterrent force.

Fifteen of the 23 have been in storage at Air Force Plant 19 in San Diego. The other eight are to be removed from storage at Norton AFB, Calif.

Work under the new contract started last week at the Kearny Mesa plant and is to run for 20 months. The first of the missiles moved into the factory, number 122 F, will be modified and delivered to Vandenberg AFB in July.

Each of the 23 missiles will be modified to a specified ABRES baseline configuration. Further modification of several will be accomplished under separate contractural agreements. These will accommodate "mission peculiar" payloads such as in the BGRV (boost-glide re-entry vehicle) launches proposed for the future.

All of the refurbished missiles will be launched from Vandenberg AFB for use in the ABRES, NIKE target and OAR scientific satellite programs. Refurbishment will include updating of telemetry, range safety, electrical, autopilot and engine systems.

(Continued on Page 2)



CONTRACT TEAMS — Convair and BSD representatives who negotiated new $4 million contract for modification of Atlas E and F missiles confer at Kearny Mesa plant before contract signing. From left are L. T. Cheung, J. M. Rogers, A. B. Eldred, J. R. Holter and G. P. Delp of Convair and R. L. Taylor, Lt. P. F. Maderia, Maj. R. L. Borland and Lt. Col. E. J. Brechwald of BSD.

DC-9 Door Unit Leaves Factory On Schedule

First DC-9 door unit completed at Convair division under the current contract from Douglas Aircraft Co. was shipped from San Diego right on schedule to the day, Feb. 11.

The unit is first of 24, together with 24 door jambs, to be built this year at Convair's Lindbergh Field plant for DC-9s on order by Eastern Airlines. First door jamb was delivered by Convair to Douglas' Long Beach plant in January, on schedule.

M. R. Yale, Convair program manager for Douglas subcontracts, gives full credit to all persons on the program for making it possible to meet delivery schedules. "Our workers on the production line, under H. G. Rote, foreman, especially are to be commended for their efforts in completing components within the time limits allowed us by the customer."

(Continued on Page 2)

Trustee Drafts Savings Reports

Annual statements on the status of their holdings in the General Dynamics Savings and Stock Investment Plan for salaried employes were scheduled for mailing early this week from New York City to individuals who were members during 1965.

The statements are being sent to divisions for relay to members, along with a personal letter from Roger Lewis, General Dynamics president.

Statements were prepared by Bankers Trust Company of New York City, Trustee for the Plan, and show a complete picture of members' own contributions as well as General Dynamics' contributions, a matching 50 cents for every $1 the member invests.

The total amount invested by the member is shown, along with a breakdown according to the investment option chosen. Also shown is a total breakdown of the amount contributed by General Dynamics to the member's account, and the total invested and total market value.

In his accompanying letter, Lewis states that statements such as this will be forthcoming each year to members at "about this time."

The Plan went into effect Oct. 1 for salaried employes of at least a year's continuous service. A similar plan subsequently was extended to hourly employes of a year's service or more.

Feb. 28 Is Deadline For Changes in 'Plan'

Remember, Feb. 28 is the deadline for any change in Savings and Stock Investment Plan options, etc.

Forms are available at employe services. They must be turned in not later than Feb. 28—and preferably before that—in order for changes to be effective with the quarter beginning April 1.

Data Products Accident-Free

A perfect 1965 safety record has been achieved by the men and women in the Stromberg-Carlson Data Products division in San Diego.

During the entire year they worked without an accident, leading all other S-C plants.

President Dause L. Bibby and vice president-industrial relations Tom Worthy congratulated Carl V. Shannon, Data Products manager, for the fine work by his employes in setting the 1965 record.

GENERAL DYNAMICS CORPORATION
SAVINGS AND STOCK INVESTMENT PLAN

EMPLOYEE ACCOUNT NUMBER:

THE FOLLOWING IS A STATEMENT OF YOUR ACCOUNT AS OF DECEMBER 31, 1965

FUNDS	CONTRIBUTIONS	UNITS AND SHARES *	MARKET VALUE *
1965 PLAN YEAR			
YOUR SAVINGS			
GOVERNMENT BONDS	$ 67.00	67.1321 UNITS	$ 66.70
DIVERSIFIED PORTFOLIO	67.00	66.9068 UNITS	67.37
GENERAL DYNAMICS COMMON STOCK	67.00	1.2518 SHARES	71.04
YOUR TOTAL SAVINGS	$ 201.00		$ 205.11
COMPANY CONTRIBUTIONS			
GOVERNMENT BONDS	$ 33.50	33.5662 UNITS	$ 33.35
DIVERSIFIED PORTFOLIO	33.50	33.4535 UNITS	33.68
GENERAL DYNAMICS COMMON STOCK	33.50	.6258 SHARES	35.51
TOTAL COMPANY CONTRIBUTIONS	$ 100.50		$ 102.54
GRAND TOTALS	$ 301.50		$ 307.65

* Includes reinvested interest and dividends.
D 7887 Please review this form and report any discrepancies promptly to the Industrial Relations Department.
Retain this statement as part of your permanent record.
Any withdrawal or distribution of the above funds is subject to the provisions of the plan.

BANKERS TRUST COMPANY, TRUSTEE

SAMPLE — Reproduced above (in reduced size) is a sample of the form soon to be received by members of the General Dynamics Savings and Stock Investment Plan for salaried employes who participated during 1965. Participation covers only the months of October, November and December. Figures could be more subject to change over a longer period of time, depending upon market conditions. Used as an example is a salaried individual, yearly income $8,000, who chose the investment option of 1/3 U. S. Bonds, 1/3 diversified portfolio, 1/3 General Dynamics common stock, and who elected to invest 10 per cent of salary.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between Feb. 15 and Feb. 28.

Thirty-year: Dept. 001-0, G. Schicht; Dept. 031-0, J. A. Gliebe; Dept. 400-3, S. C. Greenleaf; Dept. 999-0, W. M. Basile.

Twenty-five-year: Dept. 024-0, W. S. Fowler; Dept. 031-0, D. Ramsey, R. C. Trout; Dept. 131-1, A. G. Mitchell; Dept. 193-2, J. L. Smith; Dept. 420-4, C. T. Boyle; Dept. 460-0, M. O. Ramsey; Dept. 500-0, K. J. Bossart; Dept. 507-0, F. N. Williams; Dept. 531-2, F. J. Schnaubelt; Dept. 587-1, L. J. Koenig; Dept. 733-0, R. V. Brunner; Dept. 756-0, M. V. Kaiser; Dept. 835-4, F. L. Biscak; Dept. 967-1, A. Avgerenos.

Twenty-year: Dept. 001-0, L. V. Anderson; Dept. 058-0, L. R. Holz; Dept. 250-2, J. M. Smith; Dept. 400-5, V. F. Bruner; Dept. 491-0, R. A. Kiehl; Dept. 756-0, H. W. Bluhm; Dept. 780-3, E. W. Brown; Dept. 835-2, G. M. Halterman.

Fifteen-year: Dept. 019-0, L. M. Schlife; Dept. 031-0, H. N. Alexander; Dept. 054-0, R. Parsons; Dept. 057-0, W. H. Lindsay; Dept. 101-5, E. R. Wilson; Dept. 132-2, K. H. James; Dept. 140-0, M. J. Gerhardt; Dept. 170-1, C. A. Leonard; Dept. 190, E. G. Hill Jr.; Dept. 401-4, H. G. Butchart; Dept. 401-5, M. A. Thomas; Dept. 460-0, O. C. Baillif; Dept. 508-0, P. N. Bosch; Dept. 509-1, L. E. Ditler; Dept. 511-1, R. E. Cariola; Dept. 524-0, D. J. Oldfield; Dept. 532-1, R. S. Oberst; Dept. 578-1, J. C. Easton; Dept. 731-0, D. J. Haldaman; Dept. 733-0, G. M. Butcher; Dept. 756-0, F. C. Viviani; Dept. 780-4, J. Marzza; Dept. 832-3, O. R. Cleary; Dept. 838-3, V. M. Barreras; Dept. 845-3, V. O. Olson; Dept. 847-3, E. B. Kellogg; Dept. 847-4, W. J. Ellison; Dept. 956-0, J. P. Spieker Jr.; Dept. 957-0, A. H. Romag; Dept. 976-3, B. Sams; Dept. 979-3, D. Ljungquist; Dept. 985-3, J. E. Nicholson; Dept. 987-0, W. C. Hoofard.

Ten-year: Dept. 015-0, J. F. Silva; Dept. 111-0, R. C. Appel; Dept. 123-0, F. M. Lingard; Dept. 125-0, B. A. Jones; Dept. 126-0, L. Hawson; Dept. 130-1, R. B. Hashberger; Dept. 141-2, C. T. Harris; Dept. 141-3, M. E. Jensen; Dept. 142-2, J. E. Boykins; Dept. 142-4, G. N. Elgin; Dept. 143-2, L. S. Chicoine, M. C. Rosengren, E. M. Walker, O. T. Young; Dept. 143-3, R. E. Rykhus; Dept. 143-5, C. L. Yelverton; Dept. 170-2, A. E. Ruark; Dept. 170-9, N. Lees; Dept. 196-0, H. E. Gallant.

Dept. 250-2, M. E. Hall Jr.; Dept. 410-0, A. E. Ramsey; Dept. 420-4, D. P. Ellington Jr., R. Robledo; Dept. 511-1, C. C. Spikins; Dept. 524-0, E. A. Garvin; Dept. 550-0, E. S. Saari; Dept. 566-3, C. T. Smith; Dept. 578-5, K. F. Koehl; Dept. 579-2, C. C. Woods; Dept. 591-0, W. F. MacDonald; Dept. 592-0, J. C. Ballinger; Dept. 595-0, M. E. Britt; Dept. 596-0, R. E. Gillson; Dept. 731-0, J. J. Aquelino; Dept. 756-0, A. J. Garcia, M. E. Noack; Dept. 758-0, C. J. Heide; Dept. 780-2, K. W. Parks; Dept. 780-3, J. J. Ballatore, J. M. Obenschain.

Dept. 816-4, M. Vicker; Dept. 832-3, R. T. Kimmel; Dept. 833-1, J. C. Payne; Dept. 835-4, F. W. Fitzgerald; Dept. 845-3, R. W. Hardy; Dept. 950-8, R. A. Aaberg; Dept. 953-2, J. L. McManus Jr.; Dept. 954-1, A. E. Holzman; Dept. 954-2, E. L. Price; Dept. 954-3, C. B. Simmons; Dept. 956-0, G. D. Koulaxizes; Dept. 961-4, G. A. Lindberg; Dept. 966-6, H. E. Wineland; Dept. 974-4, P. Boxkovich, D. W. Davis; Dept. 976-3, M. A. Randel Jr.; Dept. 979-4, D. R. Field; Dept. 985-3, G. T. McGavern; Dept. 985-4, E. C. Pereira; Dept. 988-4, R. E. Anderson; Dept. 988-6, F. Reavell; Dept. 989-0, D. Dunn, G. F. Elwell.

In-Plant Training

ORIENTATION

NEW EMPLOYES—Educational services staff, Lindbergh Field, ext. 491, Bldg. 14 auditorium, Tuesday, March 1, 8 a.m. and 4:30 p.m. Kearny Mesa, ext. 1931, Bldg. 17, Room 3, Monday, March 7, 8 a.m.

PROFESSIONAL/TECHNICAL

PLASTICS PRODUCTION MIXING CERTIFICATION—Hal Rubin, Kearny Mesa, ext. 1931. 10 hours, 1:30-3:30 p.m. daily. Bldg. 27, Kearny Mesa. Limited enrollment.

AIRPLANE MECHANICS (On-the-Job Training)—Eight hours per day, 26 weeks, Lindbergh Field, Bldg. 3. Coordinator, Wayne Turner, ext. 491, Lindbergh Field.

ENGINEERING HELPER TRAINING (On-the-Job)—Dave Wyche, Lindbergh Field. Eight hours per day, 20 weeks: Jan. 27-June 21; Feb. 14-July 1; March 7-July 22, Bldg. 5, Lindbergh Field plant. For information call Harry Miller, Kearny Mesa, ext. 1931; Wayne Turner, Lindbergh Field, ext. 491.

PLASTIC FABRICATION TRAINING (On-the-Job)—Lindbergh Field. Eight hours per day, 16 weeks, Jan. 20-June 10. For information call Wayne Turner, Lindbergh Field, ext. 491.

MILLING MACHINE OPERATORS—(On-the-Job Training)—Eight hours per day, 26 weeks, Lindbergh Field, Bldg. 3. Coordinator, Wayne Turner, ext. 491, Lindbergh Field.

RELIABLE ELECTRICAL CONNECTIONS—Educational services staff. For information and quota call ext. 1931, Kearny Mesa. Weekly 7 a.m.-3:45 p.m., Bldg. 17, Room 10, Kearny Mesa.

OUT-OF-PLANT

TUITION REFUNDS—Employes must submit a request (Form A346) to educational services no later than THREE weeks after the starting date of the class. Requests submitted after this time will not be approved.

General Dynamics News

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Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.



35 YEARS — E. H. Roeckel, engineering test mechanic in Convair hydraulics test lab (Dept. 756), received service emblem for 35 years with division early this month from Jack L. Bowers, general manager.

Awards

CONVAIR

Employe Suggestion awards approved for the week ending Feb. 4.

Dept. 002, I. T. Andrews; Dept. 019, F. Cruz, F. H. Felchlin (two awards), G. A. Rehkopf, R. W. Talmage; Dept. 101, F. S. Pierce; Dept. 123, D. R. Pierce; Dept. 126, T. E. Hemphill, T. Tom; Dept. 128, B. P. Schrader, L. M. Turner; Dept. 141, J. E. Patterson; Dept. 143, H. A. Jackson; Dept. 146, B. A. Peters; Dept. 191, P. R. Grokoest.

Dept. 509, Evelyn G. Gilger; Dept. 733, R. H. Smith; Dept. 756, R. T. Ledesma; Dept. 763, J. D. Willingham; Dept. 818, E. F. Cox; Dept. 832, C. F. Foster, Z. M. Johnson, B. A. Shepard; Dept. 954, E. N. Bailor; Dept. 971, L. D. Reece; Dept. 972, K. F. Cash, J. A. Contasti; Dept. 987, C. J. Eskew, R. E. Sims; Dept. 989, W. G. Schultz.

Papers Presented

CONVAIR

CARLIN—J. E., Dept. 491-0. "Precision Tube Flaring by Controlled Metal Displacement," American Society for Tool and Manufacturing Engineers—Material Forming Seminar, Detroit, Mich., Jan. 18-21.

CARLSTON—C. E., Dept. 596-0. "Energy Distribution of Secondary Electrons Ejected from Cu and Mo by Noble Gas Ions in the Energy Range 1-10 KeV," American Physical Society Meeting, New York, Jan. 26-29.

BOYNTON—F. P., C. C. FERRISO, C. B. LUDWIG, A. THOMPSON, Dept. 596-0. "Radiative Properties of Carbon Particles Produced by a Rocket Motor," AIAA/Third Aerospace Sciences Meeting, New York, Jan. 24-26.

MAGNUSON—G. D., Dept. 596-0. "Single Electron Capture Cross-Sections for Ar+, Ar2+, and Xe2+ in Ar in High Energies," American Physical Society Meeting, New York, Jan. 26-29.

SCHADT—G. H. and J. J. PAULSEN, Dept. 584-2. "A Study of the Pressure and Heat Transfer Distribution on Highly Swept Slab Delta Wings in Supersonic Flow," AIAA/Third Aerospace Sciences Meeting, New York, Jan. 24-26.

Invention Disclosures

CONVAIR

BRANDENBERG—W. M., Dept. 596-0. Portable Integrating Sphere—Reflectometer.

MOORE—R. E., Dept. 581-0. Hit Detecting Target System.

SLYSH—Paul, Dept. 542-0. Compatibility Analyzer.

WRENCH—E. H., Dept. 506-1. Density Actuated Optical Switch. Device for Spacecraft Local Vertical Attitude Sensing and Control.

STROMBERG-CARLSON
Data Products

STINE—Richard L. Loop Control System.

Personals

CONVAIR

Thanks to the friends at Convair who remembered my husband, Frank Andrews, with the beautiful flowers. He often spoke of the happy hours at Convair.

Eunice Andrews.

* * *

We wish to extend our sincere thanks to all of our friends, especially those in Dept. 101, for the flowers, cards, and many expressions of sympathy at the death of our husband and father, Howard A. Berry.

Thelma Berry, Dept. 101-7,
and sons, Richard and Jack.

* * *

I wish to express my deepest thanks for the lovely floral tribute sent in remembrance of my husband, Leon Larison.

Lottie E. Larison.

* * *

The family of Hayden A. Mitchell gratefully acknowledges the kind expressions of sympathy by his Convair friends.

* * *

We wish to thank our Convair friends for the flowers and kindnesses.

Mrs. Floyd Riddle and family.

* * *

The family of Harry M. Ruby (Convair retiree) sincerely thanks all Convair friends and the Convair Management Club for the flowers, cards, and other kindnesses received at his death.

Mrs. Harry M. Ruby,
Harry E. Ruby (Dept. 420-9),
Mrs. June Chapman,
Mrs. Dorothy Curl.

Births

CONVAIR

MONTGOMERY—Son, Craig Alan, 6 lbs., 5 oz., born Jan. 1 to Mr. and Mrs. Robert A. Montgomery, Dept. 141-2.

SAFETY INSTITUTE WILL BEGIN FEB. 25

General Dynamics men are taking active parts in the annual Community Safety Institute sponsored this year by the American Society of Safety Engineers.

The Institute starts the evening of Feb. 25 and continues on three Saturday mornings, Feb. 26, March 5 and 12 on the State College campus. Included will be talks on traffic, fire, and underwater safety, poison information and prevention.

B. G. Bonner, General Atomic chief safety engineer, will keynote the opening Feb. 25 in the East Commons. Registration will start at 5:30 p.m. and lectures at 6:10.

J. W. Garrison, Convair chief safety engineer, will talk on "Safety at Work" March 5, and Ray Blair, assistant to Convair general manager, will summarize at the concluding session, March 12. Morning meetings will be in the Music Auditorium, 8:15 a.m. until noon.

Sam Rowland, president of the San Diego Chapter of ASSE and safety engineer at General Atomic, and Lynn Breen, Convair industrial hygienist, have been actively involved in arrangements.

Research and Engineering Men Commended in Cost Reduction

Certificates of commendation have been presented to 13 Convair research and engineering personnel for implementing cost reduction projects last year that are expected to save the division $1,031,457.

Savings from the projects brought the total for the year for research and engineering to $4,418,436 or $306,324 over the year's goal of $4,112,112.

B. S. Brockett, L. B. Parker and S. B. Hodge of industrial graphics Dept. 126-0 shared credit for reducing cost for chart and slide production that is expected to save the company $456,840.

The three devised a system of making 35-mm slides from a typed format and making 30 by 40-inch flip chart enlargements on a Caps-Jeffree enlarger. This cuts cost of chart production from $17 to 50 cents each.

S. Y. Johnson of Dept. 520-0 and W. T. MacCarthy of Dept. 573-0 implemented a low-cost plan for providing high-speed air capability for the low-speed wind tunnel for special high lift studies. A pipe line from the high-speed wind tunnel was installed in lieu of purchase of previously approved costly compressors. This is expected to save the company $486,568.

Johnson also received credit along with T. A. Billings and P. D. Neiswender of engineering practices Dept. 563-0 for a project expected to save the company $77,907 under which tab runs of engineering drawings and release records are replaced with microfilm and viewers.

D. H. McCoy of Dept. 524-0 was credited with $6,532 in cost avoidance due to purging of unneeded materials from file cabinets, with 92 cabinets being released for reuse in place of new cabinets being purchased.

R. J. Reyburn of Dept. 553-0 devised a simplified release for special test equipment drawings that is expected to achieve a savings of $75,035 for the company.

Others receiving certificates, their department numbers and the amount of savings expected are: F. B. McQueary, Dept. 576-6, $7,752; G. W. Cooper, Dept. 576-4, $24,203; C. A. Palosaari, Dept. 578-1, $3,405, and J. H. Stokes, Dept. 571-4, $28,080.



COMMENDATION — Among research and engineering personnel who have recently received certificates of commendation for value engineering projects are, front row left to right, B. S. Brockett, L. B. Parker, S. B. Hodge, S. Y. Johnson and D. H. McCoy. In back row, left to right, are P. D. Ferrara, director of engineering administration, and E. R. Peterson, vice president for engineering and research.

DC-9 Door Unit Leaves Factory On Schedule

(Continued from Page 1)

Delivery rate of both DC-9 jambs and doors will build up to three a month with last of the present order to be delivered in January, 1967. According to Yale, there are indications that Convair may receive additional orders for more of the DC-9 units.

Meanwhile, engineering activity at Convair on engineering design for advanced versions of DC-8 and DC-9 jet transports on order by various customer airlines has expanded with 240 engineers currently assigned to the program under R. J. Chillo, project engineer. The engineering contract from Douglas includes more than 80 different engineering packages.

Chillo expects, in view of the present and future workload, that additional engineers will be drawn into the program over the next few months. He also points out that engineers engaged in the Douglas tasks expend a great deal of individual effort and coordination to achieve satisfactory results.

Altogether, as of the end of January, the total number of Convair people, both in production and engineering, employed on Douglas subcontracts was right at the 400 mark.

Remember! Disneyland, March 26!

Contract Calls For Refurbishing 23 Atlas E and F Missiles

(Continued from Page 1)

Air Force officials estimate savings from refurbishment of retired ICBMs for use in new missions saves the government about $1.3 million per vehicle over cost of manufacture of new vehicles.

This means use of the 23 missiles covered in the new contract could result in a savings to the government of almost $30 million.

There are a potential 116 additional Atlas E and F ICBMs in storage that could be modified in future years for new research and development missions.

G. P. Delp, who headed Convair's five-man team in contract negotiations with BSD, said follow-on and launch contracts may require the continuous services of 500 Convair employes for the next five years.

The current contract is expected to require at least 150,000 manhours by Kearny Mesa factory personnel.

Delp said signing of the new contract culminated a year of planning and preparation which was "effectively spent in establishing a definitive work statement and arriving at a mutual understanding of program requirements."

Other Convair personnel who worked on the negotiations were L. T. Cheung, modification and launch program manager; J. M. Rogers, assistant program manager for missile modification; J. R. Holter, contract administrator; and A. B. Eldred, estimator.

BSD negotiating team members were Lt. Col. E. J. Brechwald, deputy director for test; Maj. R. L. Borland, senior project officer; Lt. P. F. Maderia, project officer; R. L. Taylor, contracting officer, and R. T. Mann, pricing department representative.

Delp said Pad 1 will be the last in a cluster of six at Complexes 576 A and B at Vandenberg to be converted for E and F configuration vehicle launches.

Conversion of Pad 1 will be accomplished under a one-year fixed-price, incentive-type contract. It had been used previously for launch of refurbished Atlas D missiles.

The E and F configuration vehicles will use all-inertial guidance systems while the D vehicles had radio controlled guidance.

Twenty-two Series D Atlas ICBMs have been refurbished and updated under previous BSD contracts. Eleven of the first 12 launched had successful flights.

Customers Gobble 600 Salvage Items

Special salvage sale to dispose of surplus equipment at Rose Canyon warehouse last month drew over 2,000 customers who paid $4,500 for some 600 items, R. H. Lange, Convair supervisor of material sales, said.

Customers started lining up at 4:30 a.m. until there were 1,500 waiting when the gates opened at 8 a.m. All of the desks, chairs, fluorescent light fixtures and work benches were snatched up before closing time at 2 p.m.

Next Convair salvage sale for employes will be March 12 at Lindbergh Field plant.

Missile Spares Kept 'Like New' In Humidity-Controlled Tent

A huge grey tent-like "building" is now protecting a complete set of Air Force air ground equipment spares for missile launch back-up to keep it in like-new condition while it is stored for the AF Space Systems Division at Convair's Air Force Plant 19.

Built to Convair specifications, the humidity-controlled storage system is mate to a larger one, first of its type, set up in Bldg. 2, Plant 19, last year to protect an Atlas missile (GD/NEWS, June 9, 1965).

In the ten months the missile (and accessory equipment) has been under wraps it has never needed inspection or maintenance of any kind, G. M. Coole, supervisor of Convair material handling and packaging, said. And, over 500 company representatives visited the plant in the first three months to take a look at the new storage concept—and the missile inside. In the months since, several companies have adapted the principle to their own storage needs.

The second system installed at Convair is identical in principle to the first, using the same laminated vinyl material over steel frames, plastic zippers, and motor-powered dehumidifier to maintain a constant humidity below 30 per cent.

"It provides, in reality, clean room environment," Coole said. "Once the equipment is wiped clean, inspected, and stored within the enclosure, it can stay there for months, even years, without further maintenance. The constant humidity, kept between 35 and 25 per cent at all times, provides the right environment to prevent corrosion of metal equipment and deterioration of rubber.

"All we need do is check the humidity indicator periodically. If the dial is blue, all is well. If it turns pink, then we know the level of humidity needs adjustment. Meanwhile, we have eliminated the costly and time-consuming inspection and maintenance formerly required."

The just-erected cloth structure is 50 ft. long by 20 ft. wide and 15 ft. high providing 15,000 cubic feet of storage space for "disaster pool" items. Going into the enclosure were such AGE items as a 37-ft.-long MAPCHE trailer to haul a missile, pump unit, flow control unit, pressure control unit, fuel transfer unit, battery tester, air heater solvent service unit, and associated equipment to support a missile launch. Heavy fixtures in the spares pool are positioned outside the "tent."

Whenever a specific item is required by the AF or NASA to replace damaged equipment at either Western or Eastern Test Range it can be removed through the top, which is in three sections for easy access.

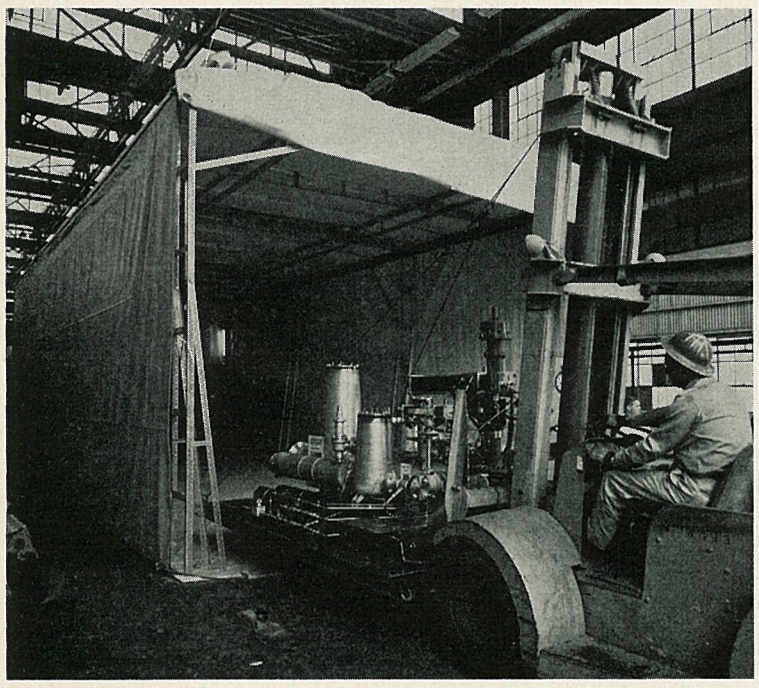
The enclosures are fabricated and erected by NAVAN Products Co.'s Driclad Plant, El Segundo, Calif. NAVAN is licensed to use the special type of closures and material formula by the English developer, Export Packing Service. The material, two layers of vinyl coated with adhesive and hot-rolled over a layer of nylon mesh, had been used for some time as protective wrapping for engines, dynamos, and electronic equipment. However, Convair was first to use the material and closures in design of the building-type configuration equipped with motor-powered dehumidifiers as permanent type of storage enclosures. The division is now considering using this storage system for cost-savings on other programs.

Volume on Computer Among 'Best in '65'

"How to Live With Your Computer," authored by Paul T. Smith, manager of cost accounting and financial systems at Fort Worth division, was selected by Library Journal in its list of the best business books for 1965.

Smith delivered a speech based on his book in December to the Dallas Chapter of Financial Executives, and another in January to the Dallas Chapter of the Institute of Internal Auditors.

Smith's book is published by American Management Assoc.



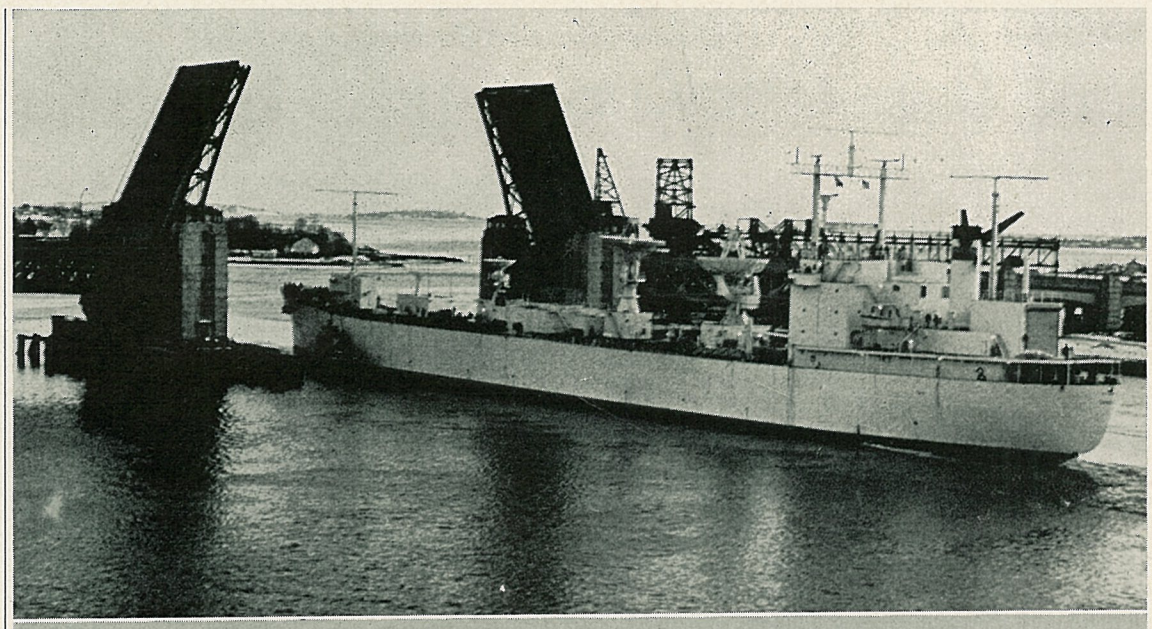
INTO STORAGE — Jim Heck of Convair transportation carefully positions liquid oxygen flow control unit, first item of Air Force "disaster pool" equipment to go into humidity-controlled storage system recently erected in Bldg. 2 at AF Plant 19, San Diego.

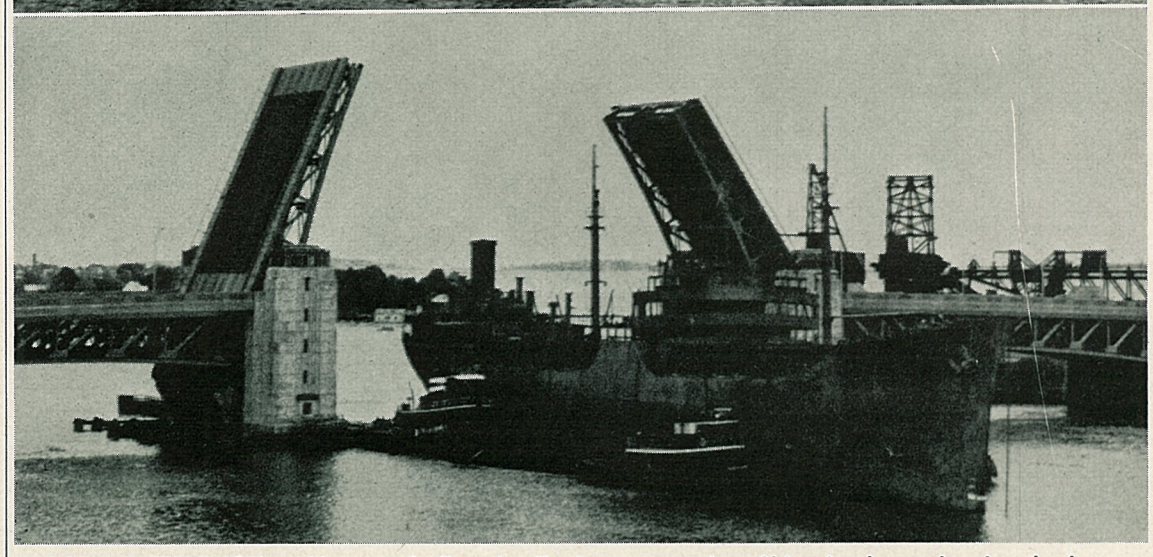
People Mobility

Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

HAROLD K. CHENEY (1936) from Convair to F-111 tests, Fort Worth division; **HAROLD E. WOLFE** (1947) from Convair to F-111 logistic support supply, Fort Worth; **PHILIP H. AYER** (1952) from Convair to security, Electronics, Rochester; **ROY T. BAILEY** (1957) from Convair to marketing, Electronics, Rochester; **EDWARD P. NEWMAN** (1954) from Convair to design engineer, Electronics, San Diego; **LEE J. LA BRIAN** (1965) from Convair to F-111 tests (Edwards) Fort Worth; **GLEN C. HEMPHILL** (1955) from Convair to electronics engineer, senior, Electronics, San Diego; **WILLIAM R. STRADER** (1957) from Convair to field support, Fort Worth.





SOME DIFFERENCE! — Vanguard, first Apollo Instrumentation Ship, is shown leaving harbor on builder's trials following modification. Other photo shows vessel before transformation at Quincy Yard of Electric Boat division.

Pomona Division Joins GD's Team Working on Apollo Ships Program

Pomona division has joined the General Dynamics team working on the Apollo Instrumentation Ships program and will begin systems testing this month on the Vanguard at the Quincy Yard of Electric Boat Division, Lew Emmerich, Electronics division program director, reported.

Twenty field service representatives of the Pomona division will be assigned to Quincy where conversion of the ship, the installation of electronic equipment, and testing are being performed.

In addition to the Pomona division test group, others in General Dynamics working on the program are the Electronics division, which is prime contractor for the program; Electric Boat, responsible for ship construction; Convair division, which is providing the telemetry antenna structure; and Stromberg-Carlson, supplying telephone and intercommunication equipment.

The Vanguard is the first of three World War II tankers being converted to floating electronic platforms which will assist in tracking the Apollo astronauts to the moon. The Apollo ships, including the Redstone and Mercury, have been called "moonships" to dramatize their role in the Apollo program.

New midsections on each of the three vessels — Vanguard, Redstone and Mercury — will house tracking, communications, telemetry, navigation and data processing equipment. The new construction will also provide living and recreation areas for the crew and electronic technicians who will man the ships.

The Vanguard had her "float out" last September and is slated to arrive at the Eastern Test Range's Port Canaveral for testing and support by late June. Eventually, the Vanguard will be deployed southeast of Bermuda during the Apollo missions. The Redstone eventually will be assigned to the Pacific and the Mercury deployed in the Indian Ocean.

Divisions Send Delegates to Coast For QC Procurement Sessions

Delegates from six divisions of General Dynamics, its Canadian subsidiary, and Corporate Headquarters met at the quarterly GD Procurement Quality Control Committee meeting in San Diego early this month to review progress on standardization of quality control requirements and forms used in transactions with outside vendors and subcontractors of all divisions.

The two day session Feb. 3-4 was hosted by Electronics - SD operation with Kent Sinclair, Electronics - SD manager of quality control, welcoming members on behalf of D. C. Prim, general manager.

A rating system for measurement of suppliers' compliance with quality requirements to assure that subcontractors of all divisions are evaluated on the same basis claimed the attention of committeemen. The system will be firmed this month.

Members also reviewed a proposed standard document of supplier quality control requirements to be used by all GD procurement quality control functions.

The committee now is in the process of standardizing supplier identification; code for identification of various processes and manufacturing capabilities; quality control purchase order clauses; new supplier survey methods, forms, and procedures, as well as other procurement quality techniques.

D. W. James, Fort Worth division chief of procurement quality control, assumed chairmanship of the committee for the current year, succeeding R. B. Davis, manager of purchased material quality at Pomona division.

Divisions represented were Electronics - Rochester division and San Diego operation, Convair, Pomona, Fort Worth, Electric Boat, General Atomic, Canadair. B. E. Justice, assistant to the Corporate director of reliability, quality control, and value control, attended from New York headquarters.

Next committee meeting will be June 9-10 at Electric Boat division, Groton, Conn.



PROCUREMENT QC COMMITTEE — Members of GD Procurement Quality Control Committee attending quarterly meeting in San Diego this month are, clockwise from left, D. W. James. Fort Worth; Sam Braun and T. J. Marcella, Convair; F. P. Heinemann and W. D. Shipman, Electric Boat; R. J. Creamer, Pomona; Kent Sinclair, Eletcronics - SD; B. E. Justice, Corporate Headquarters; R. F. Martin, Electronics - SD; John Treese, General Atomic; H. T. McClain, Electronics - Rochester; W. C. Wilhelm, Canadair; R. B. Davis, Pomona; S. L. Taylor, Fort Worth. W. D. Garrett of Electronics - SD is not shown.

Aircraft Mechanic Trainees Attend Service Center Course

Aircraft mechanic trainees at the Convair Service Center are being introduced to their new trade in a "vestibule school" started the first of this month to give young men in the government-sponsored training program a clear conception of what is expected of them on the job.

Ten at a time are attending the school on the Service Center's north mezzanine eight hours a day for a full week to learn fundamentals of aircraft procedures before they go into production areas as on-the-job trainees.

"We try to cover, or at least touch on, everything they'll need to know in the shop, but, most important of all, we want to impress on these young workers that they are not to start a job unless they know what they are doing. We can not afford costly mistakes," Sam Galasso, who is in charge of the school, said.

Galasso, educational services instructor and long-time production man, taught the first women assemblers hired by Convair during World War II days!

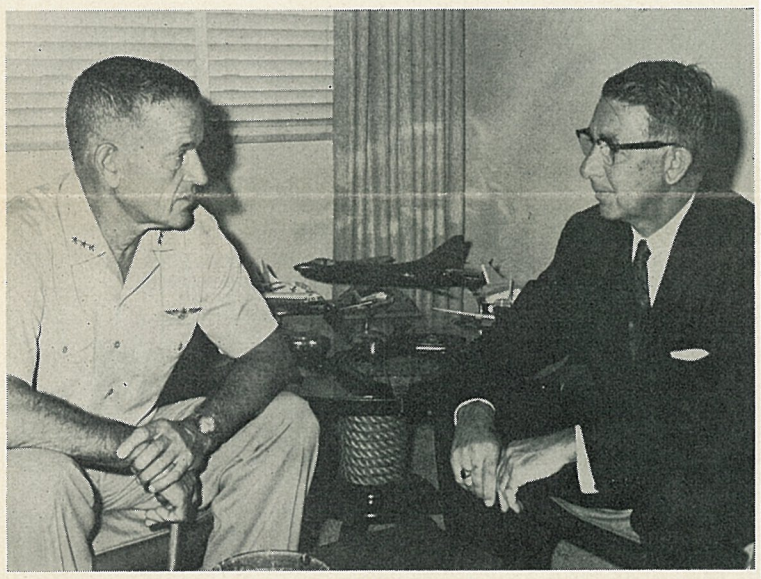
E. J. Huntsman, Convair Service Center manager, and L. F. Lau, chief of operations, feel that the week of intensified, personalized instruction and practice will increase trainees' productiveness many-fold. They are giving Galasso a free hand in screening the young men, to be certain they can handle the work when they are placed in the shop. Galasso works closely with Service Center supervisors in planning the course, so that whatever is most needed can be included.

"We are extremely pleased with the progress of the first group to pass through the school," Galasso said. "All were most cooperative and anxious to learn. Some became so interested in their projects they hated to quit when the shift was over!"

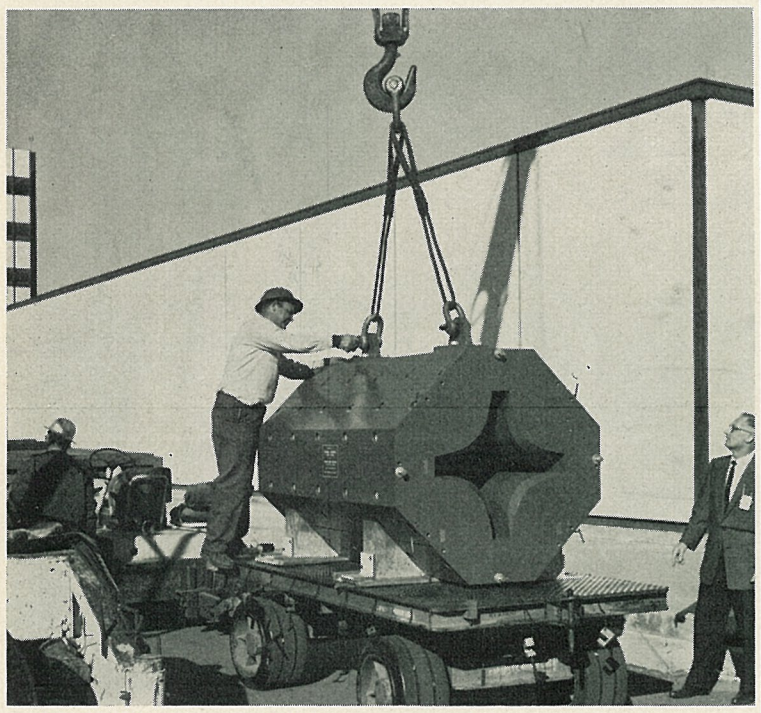
In the school trainees are taught safety rules, proper terminology, and uses of various types of equipment. They learn to handle perishable tools, build up small sub-assemblies, following blueprints and layout planning papers. They start with a layout of a simple plate with riveted holes at specified points and advance to more complex projects as they become familiar with tools and materials.

Galasso spends an hour a day explaining assignments and supplementing practice at the work station with class instruction. Each trainee's work is checked to be sure he is holding tolerances, keeping lines straight, observing safety regulations, and turning out a quality product—even if it will never go on a plane. Before the young men go into Service Center production, they are graded on their workmanship, attitude, and cooperation. And, their performance on the job will be followed to see how well they are doing throughout the rest of their 26-week training.

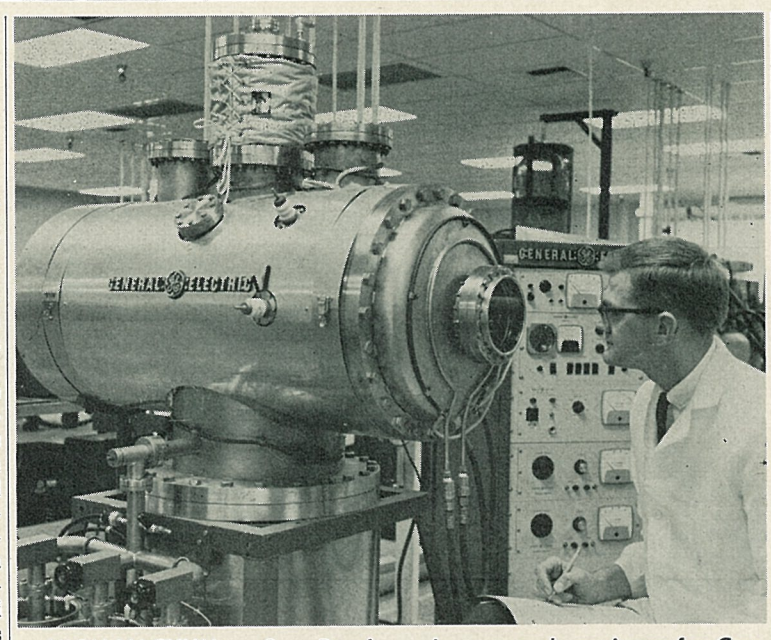
As of this week there are 59 trainees in the Convair Service Center with 10 a week to be added over the next few months, according to present plans.



CONFERENCE — Richard A. Wilson, right, president of Electronics division, is shown conferring with Vice Adm. John T. Hayward, USN, commander Antisubmarine Warfare Force, Pacific, at Pearl Harbor during workshop on ASW problems. Wilson is chairman of Planning Committee of National Security Industrial Association/ASW Advisory Committee. Also attending were John Van Leonard, Electric Boat vice president, and Victor Savchuk Jr., Electronics' manager of planning-ASW.



HEAVY MAGNET — A 16-ton quadrupole magnet core assembly, second of seven being built by Convair division for use in Stanford University's two-mile linear accelerator, is readied for trucking to San Mateo County. Cleve Larabee, crane rigger in Dept. 250-5, adjusts cable hook as Forest Erwin, program engineer for Dept. 403-2, looks on. Remaining magnet assemblies are to be delivered by end of next month.



HIGH VACUUM — Sam Bosch, senior research engineer for Convair, checks experiment in one of two new ultra-high-vacuum chambers in space environmental laboratory. Materials are tested in the chamber in an atmosphere equal to 1,500 miles altitude.

Vacuum Chambers Will Simulate Conditions at 1,500 mi. in Space

Two ultra-high-vacuum chambers, specially built to Convair division specifications by General Electric, are being placed in operation in the materials research section of the space environmental laboratory in Bldg. 4 at the Kearny Mesa plant.

Sam Bosch, a senior research engineer for Dept. 572-1, said the vacuum chambers have an 18-inch by 36-inch working area and will produce the highest vacuum obtained in this volume in the aerospace industry.

The twin chambers will use absorption, ion, sublimation and cryogenic pumping systems in testing of materials in an atmosphere equivalent to 1,500 miles altitude.

Bosch said the stainless steel chambers will be used initially for testing space environmental effects on materials, including testing of fatigue life of structural metals and optical properties of thermal control coatings.

"Answers we get should support the U.S. spacecraft program," he said.

Evaporation characteristics of materials and coefficients of friction between materials also can be studied. Ultra-violet light sources and particle accelerators will be used in conjunction with the chamber.

Bosch said when the chambers have been "pumped down" there will be only 1/10 of one quadrillionth as much air in the chamber as in the outside atmosphere!

While there will still be 500,000 molecules per cubic inch in the chamber during the high-altitude tests, this compares with 500 quintillion per cubic inch in the atmosphere.

Bosch said a molecule travels only about two millionths of an inch in the atmosphere between collisions but travels 30,000 miles between such collisions at the atmospheric level to be created in the vacuum chambers.

After absorption, pumps use an activated charcoal-like substance to start pumping gas (air) from the chambers, the ion and sublimation pumps are cut in to assist. Both of these types of pumps use titanium in absorbing gas from the chamber.

Cryogenic pumping will be used only when needed for the experiment being conducted.

The new $90,000 vacuum chambers have special copper knife-edge seals to prevent leaks and are equipped with quartz windows through which ultra-violet radiation will pass.

Number of 'Federal Manpower' Trainees Doubles at Convair

Number of trainees in General Dynamics' on-the-job training program for unskilled workers has doubled at Convair since the program was initiated last fall under a contract with the San Diego Mayor's Committee for Jobs, Inc., under provisions of the federal Manpower Development and Training Act.

Since the first trainees were accepted, others have been added in groups of five and 10 on both first and second shifts until now there are 54 well into the training program in four different trades.

All but eight of the Convair trainees are assigned to the Lindbergh Field plant. Four are in sheet metal (Dept. 001), G. K. Cox, foreman. Twenty-five are in training as milling machine operators. Of these, 17 are in Lindbergh Field machine shop, Dept. 015 under O. C. Banke, foreman.

Others are at Kearny Mesa, Dept. 731, W. T. Herchold, general foreman.

Incidentally, Banke and Herchold have nothing but praise for the program. They agree that the young men are not only eager to learn but take a great deal of pride and interest in their work.

Five are learning plastic fabrication in Lindbergh Field's Dept. 019, L. W. Stamper, assistant foreman.

As of this week 20 are learning drafting as engineering helpers in the drafting services department (Dept. 566-3), C. F. McMenamy, supervisor. Dave Wyche of drafting services is instructor.

Length of the training period varies from eight to 26 weeks, depending upon the trade. In addition to actual work on the job under supervision of journeymen, trainees receive classroom instruction in their specific field. Wayne Turner and Harry Miller of educational services, who act as coordinators for the program, conduct familiarization classes. Ed White, also of educational services, instructs mathematics classes for milling machine operator trainees; D. M. Sullivan, Dept. 041, teaches shop procedures; and other specialized instructors are called upon when the need arises.

Convair expects to continue adding trainees and plans to open other trades to the program. Groundwork is being laid now for training in numerical control programming and machine operation.

All applications must be made through the California Employment Office which provides initial screening and testing, J. A. Croft, chief of educational services, emphasized.

Applicants are referred by the Employment Office to companies in the area, which, in turn, screen and hire those best suited to their needs. Companies pay the total amount of trainees' wages but are reimbursed by the government for instructors' time during the training period.

Visitors Tour Test Site B At Open House

Test Site B, where the Convair division uses liquid hydrogen and liquid nitrogen in a wide range of test programs, was shown to 179 visitors during an open house from 1 to 5 p.m. Feb. 5.

The site was put in operation last year on Company-owned land about 12½ miles from the Kearny Mesa plant and about a mile north of the Sycamore Canyon Test Site. It is under the direction of Phil Gardner, manager of engineering test facilities.

There are three control buildings and seven concrete test slabs at the site. All the test areas are served by a central cryogenic storage and distribution system.

R. T. Tuttobene, test lab group engineer, said the open house exposed Convair's hydrogen test capabilities to representatives of other industrial firms in the area.

Representatives of General Atomic, Solar, Straza, Fairchild, Aero-Flex, the San Diego Gas & Electric Co. and R. E. Hazard Construction Co. attended as well as Convair personnel and dependents.

Guided tours were conducted by Tuttobene, J. A. Denneny, D. E. Lawrance and W. M. Thomas. T. R. King, supervisor for engineering support Dept. 756, was official greeter.

H. B. Brittain used liquid nitrogen, balloons, strips of rubber and stainless steel tubing in a series of demonstrations to show how materials react in a super-cold environment.

R. T. Spencer demonstrated testing of a typical liquid hydrogen vent valve and J. P. Clay gave a demonstration on insulation materials for use in space.

C. B. Brantley described the main blockhouse for guests and J. E. Dorsch and A. H. Christensen explained use of the new mobile vibration laboratory trailers.

J. H. Tabler spoke on how thermocouples and transducers used in liquid hydrogen are calibrated.

During peak test periods at the site, six test engineers and 30 engineering support personnel are directly involved.

Bldg. 21 provides a control station and recording area for the adjacent test pad and can be used for pads A-1, A-2 and A-3, where most of the material properties and small components tests are performed.

Bldg. 23 is the control point for pads B-1, B-2 and C. The B pads are for moderately large component tests. Area C is a 20 by 40-foot covered pad with a clear height of 20 feet and is designed for large-scale tests using portable vibration equipment.

Bldg. 24 is the blockhouse for Test Area D, which is separated from the remainder of the site by a 10-foot earth embankment and is used for hazardous burst tests.

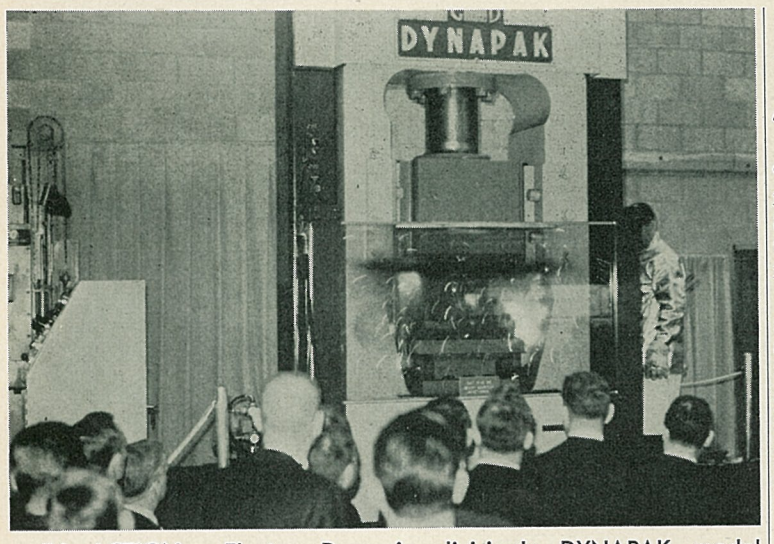
All the test areas are equipped with a remotely operated water deluge system to minimize danger in event of fire. The site also has a hydrogen gas detection system at each test area and in buildings 21 and 23.

Scientists Prepare Institute Papers

Three Convair scientists will present papers at the Electric Propulsion Conference sponsored by American Institute of Aeronautics and Astronautics in San Diego March 7-9.

Lothar Liebing, staff scientist, and A. V. Larson, chief of the plasma propulsion lab, will team in a discussion, "Experiments with a Pulsed Arc Plasma Thruster," and join A. R. Miller, physicist, in a paper on "Experiments with a Voltage Switched Pulsed Coaxial Gun."

The Electric Propulsion Conference is held annually to discuss advances in the field of electric propulsion design and engineering.



IN ACTION — Electro Dynamic division's DYNAPAK model 1220D will be demonstrated in April at ASTME show in Detroit. Here it is shown striking a hot billet to produce precision zero-draft forging in single 60 mph blow.

Processing Efficiency Upped As New Computers Go to Work

One of the first IBM System 360 Model 40 computers in the country has been installed in the Convair division's computer laboratory in Bldg. 4 at the Kearny Mesa plant.

Don Pardee, chief of division systems, said use of the Model 40 and a Model 50 computer to be delivered in May will reduce computer lease cost by almost $120,000 per year while significantly increasing processing efficiency.

The two new computers will replace the slower and more costly 7010 and 7074 computers now in use.

William Boos, marketing representative for IBM at Convair, said both the Model 40 and 50 are third generation computers using solid-logic technology components.

"This micro-miniaturization of components and circuits results in greater reliability, higher speed, lower cost and more compactness," he said.

The first generation of computers used vacuum tubes, the second used transistors about the size of a pencil eraser and the third uses silicon particles called "chips" in the logic circuits that are so small it takes more than 50,000 of them to fill a thimble!

Boos said the Model 40 computer has 262,000 memory positions, compared with 80,000 for the 7010 and 100,000 for the 7074 computers.

The Model 40 and Model 50 equipment will be compatible with each other as well as with other computer equipment in the System 360 series, providing for expansion or contraction without costly reprogramming as needs change. In addition, the Model 40 and 50 equipment can utilize the systems programmed for the 7010 computer.

Convair currently has three System 360 Model 30 computers emulating the computer programs of more costly peripheral computer equipment used previously.

The Model 40 configuration now in use includes the operator's console, eight magnetic tape drive machines, a printer, a card punch and reader, and two disk drives. The disk drives contain removable disk packs, each containing 7¼ million characters of data.

The System 360 computers now in use at Convair have the capabilities of reading from tape both forward and backward to reduce processing time. The maximum attainable speed for reading of the present tapes is 90,000 characters per second.

Pardee said new double-density tapes and new tape drives will be available later this year that will double the speed to 180,000 characters per second.

"Convair division has continually kept pace with advances in computer technology," Pardee said. "Use of the new third generation computers will continue to enhance the division's technological capabilities and achieve immediate reductions in the cost of computer processing."

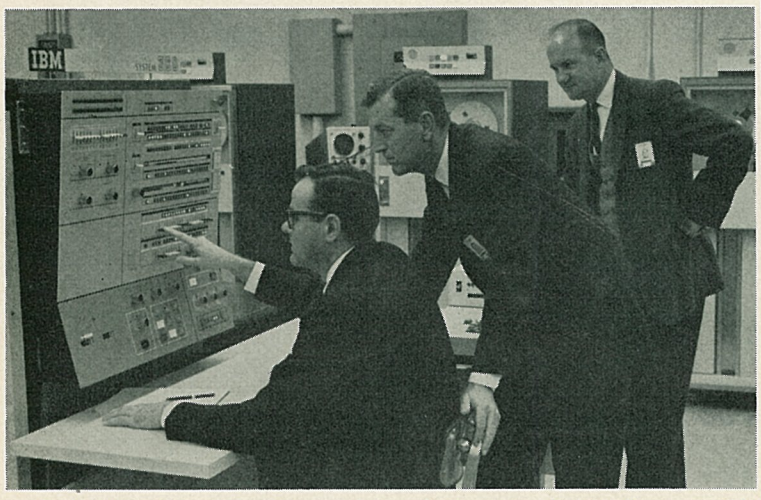
Transponder Contract Let

Electronics division has been awarded a $792,000 contract to design and develop a space-rated generation of the Mistram "B" Transponder for the Air Force Eastern Test Range (Cape Kennedy).

Work will be done in the division's San Diego plant.

The original unit is used in the Titan and Minuteman missiles. This new generation will be smaller and lighter and capable of being carried in spacecraft such as the Manned Orbital Laboratory (MOL). A transponder receives and transmits signals in conjunction with ground tracking stations to pinpoint the position of spacecraft or missile.

The first transponder produced by General Dynamics was for the Atlas ICBM. Research and development efforts reduced original weight from 70 pounds to 4.5 pounds. Since 1954 ten separate transponder models have been developed by GD in support of major ballistic and space vehicle programs; over 500 units have been flown in various missions.



COMPUTER FIRST — Operation of Convair division's new IBM System 360 Model 40 computer, first of its kind in San Diego area, is analyzed by, left to right, William Boos, IBM representative; E. G. Hill, controller, and Don Pardee, chief of division systems. New third generation computer is expected to increase technical capability while reducing operating costs.

ES Winners Feted, See Atlas Launch at WTR

Vandenberg AFB rolled out its "red carpet" Feb. 10 and 11 for four Convair employes from the San Diego area who had won a trip to see an Atlas firing at the famed Western Test Range base.

Winners in the Employe Suggestion contest were K. G. Blair, a technical information specialist in Dept. 128; Donna S. Shuffler, a secretary in Dept. 140; G. D. Lundquist, a journeyman welder in Dept. 759; and M. F. Gonzales, material liaison man in Dept. 874-2.

Blair and Mrs. Shuffler had high-dollar savings suggestions and Lundquist and Gonzales, the largest number of suggestions approved during the five-week contest period. Gonzales is employed at Lindbergh Field and the other three at the Kearny Mesa plant.

The four winners left Feb. 10 on the all-expenses-paid trip to Vandenberg in Convair's Aero Commander with veteran Convair pilot Vince Gann at the controls.

After a 1½-hour flight that took them over Catalina, the four were met at Vandenberg by Tony Estalio, engineering administrative assistant.

Donald L. Fagan, Convair's base operations manager, gave the group an hour-long briefing on the base and its facilities and operations. They then checked into their hotel rooms at the Village Inn near Lompoc and were guests for a multi-course dinner with Fagan and Estalio in the Vandenberg AFB officers club.

Contest winners with their hosts then toured the ABRES-B launch site for a close-up look at the flood-lit Atlas 86-D "bird" they were to see launched. Jim Copeland, ABRES-B site manager, and Curt Johnson, Vandenberg chief engineer, assisted in briefings.

Final preparations for the launch were watched through television monitors in the Vandenberg launch operations control center. Down-range problems delayed the launch from 12:30 to 5:15 a.m. Just before liftoff, contest winners and their hosts went out on the control center balcony to watch the flight.

"It was a tremendous sight," Blair recalled later. "It was a crystal clear night and the whole sky lit up. We watched the orange fireball from the Atlas engines for five or six minutes."

After a few hours sleep, contest winners lunched with Estalio at the Village Inn and returned to Vandenberg for a meeting with Fagan and other officials including Phillip Stone, chief of industrial relations, and for a tour of the base.

At PALC-2 the group got a close-up look at Atlas SLV-3 No. 7115 mated to an Agena vehicle being prepared for its later successful launch Feb. 15. Dick Smith, PALC-2 assistant site manager, briefed them on operation of the launch control center.

Contest winners also revisited the ABRES-B site for a "day after" look at the pad where the Atlas D had been fired.

After the four reboarded the Aero Commander for the return flight late Friday, they learned that the field was closed momentarily for a Minuteman launch. It was T minus 4 and counting.

"It looked as though it took off right in front of the plane," Blair said. "Actually it was a few miles away."

After stops at Pt. Mugu and Los Angeles for passengers, the feted foursome returned to Lindbergh Field about 7 p.m.

"Everyone treated us royally," Blair said. "We couldn't get over it. We were impressed with the efficiency of the operations and with the pride everyone there takes in their work."

Emile Genest, communication representative at Vandenberg, handled all arrangements in conjunction with Warren Ridge of the cost reduction and value engineering department at Kearny Mesa.

Blair's award winning suggestion cut the number of subscriptions for government specifications and instituted new procedures for securing needed copies for library and sub files and is expected to save the division $7,344 during the first year.

Mrs. Shuffler's suggestion eliminated the necessity for the reliability control department submitting individual overtime requests and is expected to save $7,188. Under the new procedure, estimated overtime hours required by reliability control personnel on each project are now estimated weekly on the master overtime forecast submitted by the operations department.

Lundquist had six suggestions submitted during the contest period approved with first year savings to the division expected to be more than $3,700. Four of the six were related to use of the electron beam welder, one suggested making of a "line-up tool" for welders to use in lining up halves of a helium shroud for welding and the other suggested flaring of leading edges of tubes to be welded to slightly larger diameter bellows.

Gonzales had four suggestions approved with all relating to changes in the size in which materials are purchased or cut in order to eliminate waste of material. His suggestions are expected to save the division more than $1,700.

Each of the four contest winners received checks totaling 10 per cent of the expected first year's savings from their suggestions, in addition to the Vandenberg trip.

A total of 521 Employe Suggestions were submitted during the contest period, a 78 per cent increase over the usual volume. Of the total, 115 were approved and are expected to save the division a total of $61,112 during the first year of implementation.

Laser Navigation System Discussed

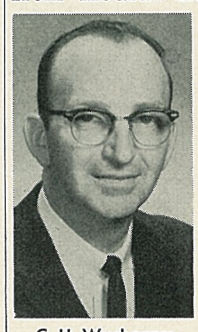
Results of research in electro-optical navigation systems was topic of Convair's R. M. Williams, chief of guidance analysis, at a seminar for graduate students in the University of California at San Diego's aerospace and mechanical engineering department early this month (Feb. 3).

ELECTRONICS NAMES ASST. CONTROLLER ASSIGNED TO SD

Clifford H. Wychgram has been named assistant controller of Electronics division of General Dynamics by Richard A. Wilson, Electronics president.

Wychgram will be based at San Diego with full responsibility for controller functions at Electronics - SD operation, reporting to D. C. Prim, general manager.

He comes to General Dynamics from McGraw-Edison Co. where he was comptroller of the Daven Division at Livingston, N.J. He held the same position for the previous year while the division was under the management of General Mills, Inc.



C. H. Wychgram

He first joined General Mills in 1951 and held important financial positions over the years in the Electronics Division, Minneapolis, Minn., serving as comptroller from 1961 to 63 when he transferred to Daven. From 1960-61 he was assistant to the vice president of General Mills' Electronics Group.

A graduate of the University of Wisconsin, he holds a business administration degree in accounting and economics. He is a member of the American Management Association, New York City.

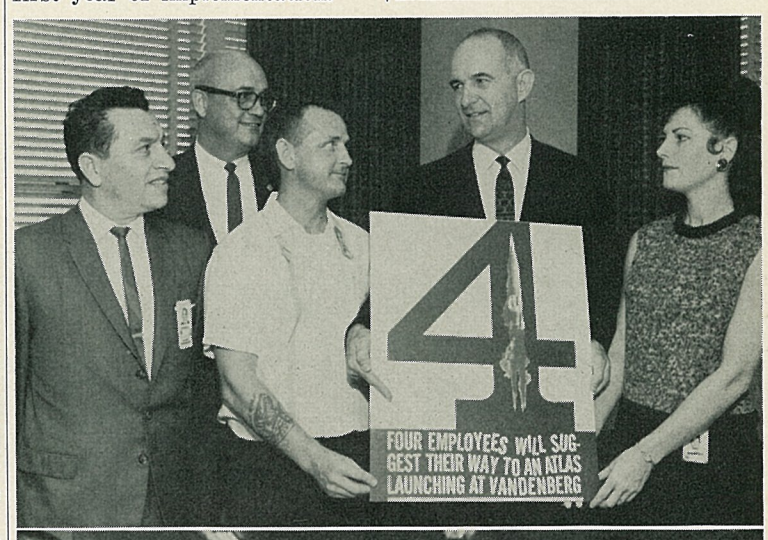
Dr. Creutz Keynotes Nuclear Gathering

Dr. Frederic de Hoffmann, president of General Dynamics' General Atomic division, was honorary chairman of the Conference on Reactor Physics sponsored by the San Diego Section of American Nuclear Society in San Diego Feb. 7-9.

De Hoffmann is a director of the American Nuclear Society.

Dr. E. C. Creutz, vice president for research and development at General Atomic, keynoted the three-day meeting which drew atomic scientists from all parts of the United States, Europe, and Africa.

C. B. Melese, also of General Atomic, was general chairman.





LAUNCH TRIP WINNERS — Four Convair employes who won Employe Suggestion contest made two-day trip to Vandenberg AFB this month to watch an Atlas firing. General Manager Jack L. Bowers, second from right in top photo, extends congratulations to winners. They are, from left, Manuel Gonzales, K. G. Blair, G. D. Lundquist and Donna Shuffler. In lower photo, taken at Vandenberg, Dick Smith, PALC-2 assistant site manager, explains operation of blockhouse console, with Donald L. Fagan, Convair base operations manager, at left.



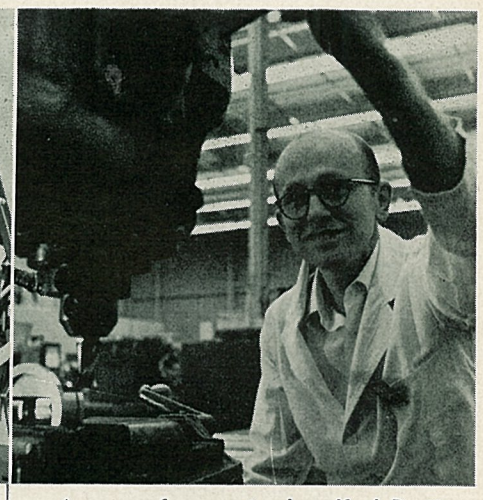
The voice of Ann Crossland, who has manned the switchboard at Stromberg-Carlson's Data Products division in San Diego the last five years, is familiar coast-to-coast as she places frequent cross-country calls to S-C's East Coast operations. Ann also operates the wire communication equipment, Telex and Desk Fax, at the San Diego-based facility. A native of Oklahoma, she moved to El Centro in 1950 and joined the telephone company there. Moving later to San Diego, she worked the switchboard at the Pacific Telephone Co. before joining Stromberg-Carlson. Her husband, George, is an engineering writer at Solar, division of International Harvester Co. They enjoy beach activities, spending their weekends in warm weather water skiing on Mission Bay.



Barney Hughes, checkout crew chief at the Convair Service Center, has made the circuit of Convair and former Astro off-site bases. He joined Convair at Palmdale 8 years ago as electronic technician on F-102 communications systems, went from there to Atlas ICBM sites at Vandenberg, Warren, Lincoln, Fairchild, Altus AFBs and back to Vandenberg before transferring to the Service Center last summer. He was assistant complex supervisor at Altus. He learned his trade in Army communications and was employed at Wright-Patterson AFB before moving to California. He, his wife Aurelia, and sons, Andre, 6, and Bradford, 2, live in Emerald Hills area. An avid sportsman, Hughes enjoys bowling, golfing, fishing, plays on local basketball and baseball teams.



A. E. Jones, snapped sorting whiffletrees in the yard at Convair Harbor Drive Test Site's structures laboratory, is one of the lab test mechanics of Dept. 509-1 who are responsible for building the fixtures and setting up the tests, currently for F-102 fatigue and landing gear testing, in the huge structures lab hangar. He began his career with Convair 24 years ago and has been at the Harbor Drive site since 1949. He first was assigned to engine tests on the Sea Dart and R3Y seaplane, then worked in the airflow lab at the ramp before moving to the structures lab five years ago. His wife, Pearl, has been a telephone operator with Pacific Telephone the last 20 years. They make their home in Fletcher Hills where Jones spends all of his spare time on his clock collection.



A man of many trades, Karl Brettenberger now operates a vertical milling machine in Electronics - SD machine shop. He holds a degree in engineering from Penn State and presently is heading toward a master's in industrial arts at San Diego State. Brettenberger served his machinist apprenticeship at General Electric's Erie Works Refrigeration Division and worked at the trade at Lincoln Electric four years before moving to San Diego in 1958 to join the former Astronautics division. He was an industrial engineer there for five years. In spite of distractions of eight children, ages 8 months to 12 years, he carries a heavy schedule of college studies. He plans to qualify for teaching metal and wood shop on high school level. Obviously, he has little time for hobbies.

Newly Formed S-C Con-Trib-Club Votes $5,000 to United Services

Newly-appointed members of Stromberg-Carlson Data Products division's Con-Trib-Club committee, which administers employes' donations for charitable organizations in the San Diego area, approved a $5,000 gift to United Community Services at their first meeting this month.

J. W. Swank, manager of industrial relations, who heads the Employes' Con-Trib-Club committee, said that the UCS contribution will be paid in two installments. First payment of $2,500 will be presented in March.

Tentative approval was also given a donation of $200 to Big Brothers of San Diego County, and one of $250 to San Diego County Heart Association. Final readings will be held at the March meeting.

Working with Swank on the Con-Trib group now are Clay Murdock, S-C Management Club representative; William Wilson, accounting; Clete Klein, production engineering; and Loretta Boyd, assembly.

In addition to handling contributions to worthwhile philanthropic organizations, the committee is responsible for assists to S-C people in financial difficulties through no fault of their own. Ten per cent of all Con-Trib receipts are channeled into the Emergency Aid Fund, earmarked specifically for S-C employes in need of help.

Currently 87 per cent of all Data Products employes based at the San Diego division are contributing to Con-Trib through payroll deductions.



S-C CON-TRIB GROUP — New members of Employes' Con-Trib-Club committee who will be responsible for administering Stromberg-Carlson Data Products' charitable donations are, from left, J. W. Swank, William Wilson, Loretta Boyd, Clay Murdock, and Clete Klein.

Law Forbids Trailer-Riding, But It's Okay with Campers

General Dynamics families with trailers are reminded that California vehicle laws make it illegal to ride in the trailer. California Highway Patrol officials say that this regulation does not apply, however, to camper trucks.

Maximum speed limits for trucks has been increased from 45 to 50 miles an hour under new motor vehicle laws passed by the 1965 legislature.

Slow vehicles, including passenger cars, being followed by five or more vehicles on a two-lane road where conditions prevent safe passing must pull to the side to allow cars behind to pass when there is sufficient area for a safe turn-out.

Drivers under 21 years of age convicted of carrying alcoholic beverages, even if unopened, in a vehicle when not accompanied by a parent or guardian may have their drivers licenses suspended and their vehicles impounded up to 30 days by the court.

FISHER APPOINTED TO ENGINEER POST

Charles R. Fisher has been appointed manager of engineering for the Data Products division of Stromberg-Carlson, Carl V. Shannon, general manager at San Diego, announced.



C. R. Fisher

Fisher, who has been with S-C since 1947, has been manager of advanced development in the telecommunications group at Rochester.

Fisher will be responsible for all engineering and development of the division's data handling and display equipment including the S-C 4400 Computer Document Recorder and the S-C 1100 Inquiry Diplay System.

Fisher came to S-C as a test engineer and progressed through various engineering assignments to be named head of digital communications laboratory in 1958. Subsequently, he was named chief of product engineering and in 1963, manager of advanced development.

He is a graduate of Cornell University and a member of the Research Society of America, the Institute of Electrical and Electronic Engineers, and the Association for the Advancement of Science.

Business, Personal Flying Talk Slated

Impact of business and personal flying on American life will be discussed at 7:30 p.m., March 1, at CRA Clubhouse by M. V. Harris of Cessna Aircraft Co., for the Convair Bonair Flyers.

Harris holds a commercial pilot's license and is a certified instrument flight instructor.

The CRA flying group has resecheduled its fly-in to Palm Desert for this coming Sunday (Feb. 27).

Several members are planning a return flight to Bahia de los Angeles in Baja California over the weekend of March 5-6.

Railroad Undergoes Modification Job

CRA's Railroad in the Missile Park, Kearny Mesa, is undergoing modification but should be back in service by April.

About 30 Railroad Club members are working in spare time to install new electrical wiring, a modified cooling system and electrically operated door latches. Those who would like to take part may call ext. 1442, KM.

Training Seminar Considered by Club

A Sensitivity Training Seminar will be scheduled this spring for members of the Convair Management Club, if enough interest is expressed, Bob Williams, education committee chairman, said.

The seminar will be held either over a three-day weekend at a nearby resort or one evening a week for 12 weeks, depending upon choice of club membership. Cost of the weekend seminar is estimated at $75 a person, while the class series would cost approximately $40.

The training course is geared to help persons learn to work more effectively with other individuals and groups.

Members may contact Williams, mail zone 586-00, for more information.

Soar Championship Set For March 5-6

Top glider pilots are expected to compete in the 20th annual Mid-Winter Soaring Championships March 5-6 at the Torrey Pines Gliderport, Walt Mooney of General Atomic, meet chairman, announced.

The annual glider meet is sponsored by the San Diego Junior Chamber of Commerce and Associated Glider Clubs of Southern California, Ltd. Meet hours are from 10 a.m. until 4 p.m. on both Saturday and Sunday.

J. R. Spurgeon of Convair will, as usual, be master of ceremonies.

Investment Talks Planned at Kearny

A series of investment lectures opened this week for Convair Management Club members with sessions to continue the next four Tuesdays in Kearny Mesa plant's Bldg. 2 presentation room, 5-6 p.m.

Robert A. Bowden of Hornblower & Weeks-Hemphill, Noyes will discuss mutual funds, stocks, convertible bonds, warrants, commodities, and investment counselors.

No advance registration is required.

Marge Gibson Wins Golf Exhibition

Marge Gibson, member of GD Women's Golf Club and wife of Lou M. Gibson, Convair Dept. 403, teamed with pro linkswoman, Kathy Whitworth, to win an exhibition match at River Valley course early this month.

They defeated pro Carol Mann paired with Martha McKee of San Diego. Marge one-putted five greens to finish with a score of 34 on the 31-par nine hole course.

EATON TRIUMPHS IN KEG TOURNEY

Bill Eaton of Dept. 552-2, a 146-average bowler, rolled a final 1,709 ten-game series (plus a 180-pin handicap) to win the Convair Management Club Bowling Singles Classic.

Besides cash and top prize, Eaton won a trip to the California State Bowling Tournament in Riverside, Calif. Teammates also earning a trip are Al Reiter, 2,035; Warren Williamson, 2,009; Don Ruder, 2,004; and Bill Grugel, 2,000.

Reiter, a 196-average bowler, posted a 2,015 scratch in the ten-game roll-off to take high scratch honors. Bill Hill had a high single game score of 233 in the final series.

Four five-man teams will represent the Management Club in the Zone A Bowling Tournament in Anaheim early in April, Forest Erwin, bowling chairman, reported.

Ames Elected Prexy Of CRA Coin Group

Steve Ames was elected president of CRA Coineers at the Feb. 16 meeting. He succeeds Herb Rubottom who headed the coin collectors group during the current club year.

F. B. Wagner was re-elected vice president; E. C. Jankowski is new secretary; and J. C. Watt, treasurer.

Officers will be installed at a dinner ceremony the latter part of March. Next regular meeting will be March 16 in the Convair cafeteria, Lindbergh Field.

IRC Travel Program Will Be Explained

Dud Shumway, Industrial Recreation Council travel agent, will describe IRC's travel program, which offers tours to many parts of the world at discount prices, next Thursday, March 3, at 7:30 p.m. in Room C, CRA Clubhouse, Kearny Mesa.

He will show color films of Mexico, Alaska, and Hawaii and answer questions.

Brochures containing details, dates, and prices of tours are available at all employe services outlets and at CRA Clubhouse.

KENT NAMED TO CRA POST

Al Kent, Dept. 403-1, has been appointed co-commissioner for CRA Railroad Club, J. K. Field, chief of employe services, announced. E. B. Stevens, Dept. 452-0, is commissioner.

Sports & Recreation

Circle March 26! That's Date For Five Hours at Disneyland

Families by the score are circling March 26 on their calendars as the day for the entire family to attend the big five-hour General Dynamics party at Disneyland, sponsored by Convair Management Club.

Tickets are on sale at $3.50 each from all employe services outlets, CRA Clubhouse, and Management Club Boosters.

The party will begin at 8 p.m. and the single admission price will cover unlimited entry to all attractions during the evening.

General Atomic personnel can obtain tickets at their administrative services office. Liquid Carbonic employes can obtain them from the office of T. M. Paddock.

Bob Perrin is in charge of ticket sales at Electronics - SD. Ray Mattas is handling tickets at Stromberg-Carlson Data Products. Employes at Edwards AFB can secure tickets at the industrial relations office there and Jack Cairns is handling tickets sales at Vandenberg AFB.

Bob Emerson, Management Club planning committee chairman, said friends and relatives of General Dynamics personnel are invited to attend but advises buying tickets prior to the event. None will be sold at the gate.

Friday Deadline In Net Tourney

General Dynamics tennis players have until this Friday (Feb. 25) to sign for the annual spring tennis tournament sponsored by CRA Tennis Club March 12-13, 19-20, 26-27.

Play will be on courts at Morley Field, Mesa College, General Atomic, and Convair Kearny Mesa, said tennis commissioners, Ray Hardy and Bob Herold.

Events will consist of singles and doubles for both men and women, mixed doubles, and man and wife teams in master, advanced, intermediate, and novice classes.

The tourney is open to outside industrial teams and select master players as well as to players from all GD divisions in San Diego.

A supplementary trophy fee of $1 will be assessed for each entry and a 50-cent ball fee charged for each event entered. Balls will be furnished.

Entry forms may be obtained from Convair employe services outlets and CRA Clubhouse. For additional information contact Hardy, ext. 1692, KM.

AL REITER'S 78 WINS LOW GROSS

Winners in the Jan. 22-23 CRA golf tournament at Cottonwood Country Club were:

Flight 1 (0 to 14 handicap)—Al Reiter, Dept. 015-0, low gross (78); Art King, Dept. 953-4, second (81); George Kureri, Dept. 015-0 and Bill McIntosh of Dept. 595-0, tied for low net (73).

Flight 2 (15 to 19 handicap)—G. A. Paxson, Dept. 142-4, low gross (83); Joe Hooker, Dept. 970-0, second (92); Curt Tanner, Dept. 587-1, low net (73) and Paul Williams, Dept. 744-0, second (75).

Flight 3 (20 and over handicap) — William Anderson, Dept. 973-1, low gross (97); J. W. Dey of Dept. 976-1, second (100); Bill Bullock, Dept. 113-0, low net (76) and George Burke, Dept. 420-0, second (77).

HARDISON SPEAKS ON "COMMUNICATIONS"

J. M. Hardison of Convair service parts (Dept. 113-0) spoke on "Communications" at the Feb. 17 breakfast meeting of the Society of Plant Engineers for Pacific Telephone Co., which includes all of San Diego county. His subject matter was based on Convair's use of the Data Phone and data processing media for automatic communication of information.

Founder of Hostel Group Will Speak

Dr. Clifford Graves, founder and president of the La Jolla Hostel Group, largest in the United States, will speak and show slides of a bicycle tour of Europe at CRA Bicycle Club's meeting Monday (Feb. 28), 7:30 p.m., CRA Clubhouse.

Zorrilla to Lead Punta Diggs Jaunt

CRA Adventurers are going to make it to Punta Diggs in Baja California in a group—at last!

Jorge Zorrilla has been tapped to lead the excursion, in the planning for some time, over the weekend of March 5 and 6, Commissioner Dick Bowen said.

The unpopulated and unspoiled beach on the Gulf of California, 15 miles south of San Felipe, is a treasure-trove for shell and sea life collectors. Adventurers invite all outdoor enthusiasts — rockhounds, camera fans, fishermen, hikers—to join the trip.

Families will rendezvous at San Felipe at 8 a.m. Saturday and follow the leader to the beach camping site. Bring camping equipment, food, and water for the two days. Zorrilla will answer questions at his home phone, 454-1374.

Adventurers have reserved the entire CRA auditorium, Kearny Mesa, March 16, in anticipation of another sell-out crowd at a one-hour slide showing, "Contrasts in Scenic Grandeur," by Edith and Larry Tuttle of Convair. The Tuttles' showing of "Western Wonderland," sponsored by the CRA group last fall, drew a capacity house.

Alpine Mountaineer To Narrate Movie

General Dynamics' winter sportsmen, and those who would rather enjoy the outdoors the easy way, will have a chance to view "Adventure-Bound," at the Russ Auditorium, 7:30 p.m., March 1.

Hans Gmoser, expert Alpine mountaineer, will narrate in person.

The film showing of glacial formations, skiing, climbing, and winter mountaineering is sponsored by the San Diego Chapter of the Sierra Club to commemorate the chapter's 1,000th member, said N. R. Keough of Convair, Sierra Club special events chairman.

Tickets at $1.50 for adults and $1.00 for young people 17 and under may be obtained from Keough at Lindbergh Field plant, ext. 451.

At Kearny Mesa tickets are available at employe services and CRA Clubhouse.

CRA FISH CLUB ELECTS OFFICERS

New officers of the CRA Tropical Fish Club, elected at the Feb. 14 meeting, are John Madryga, president; Tony Hwozdek, vice president; Bev Infield, secretary; and Dave Hays, treasurer. Program chairman is Saul Rodriquez. All GD tropical fish fanciers are invited to join the group which meets on the second Monday night of each month in CRA Clubhouse.



DANCERS — Convair square dancers hosted 25 couples from Pomona division's Convairiety Steppers at all-General Dynamics Jamboree Jan. 29 in CRA Clubhouse. Convair and Pomona square dance groups take turns hosting annual visits. CRA Commissioner Marty Stutz and wife, Rosemary, are at left in back row.

CRA Calendar

(For information on CRA activities call CRA Headquarters, Kearny Mesa, ext. 1111. Deadline for copy for the next issue of GD/NEWS is noon, March 2. Call ext. 3322, KM, or ext. 1071, LF.)

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ADVENTURERS — Weekend trip to Punta Diggs, Baja California, March 5-6. For information call Jorge Zorrilla, 454-1374.

BADMINTON — Play Mondays, 7-10 p.m., Federal Bldg., Balboa Park.

BASKETBALL — Shop league play Wednesday evenings and Saturday mornings, Muni Gym, Balboa Park.

BICYCLE CLUB — Election of officers Feb. 28, 7:30 p.m., CRA Clubhouse. Program by Dr. Clifford Graves.

BONAIR FLYERS — Meeting March 1, 7:30 p.m., CRA Clubhouse. Fly-in to Palm Desert rescheduled for Feb. 27.

BRIDGE — Play each Friday, 7:30 p.m., CRA Clubhouse.

CAMERA CLUB — Meeting March 6, 7:30 p.m., Photo Arts Bldg., Balboa Park.

CERAMICS—Instruction Tues., Wed., Thurs. evenings, 7:30-10:30 p.m.; Wed. morning, 10 a.m.-1 p.m., CRA Clubhouse.

CHESS — Play each Wednesday, 7:30 p.m., CRA Clubhouse.

DELTA DIVERS — Meeting March 9, 7:30 p.m., CRA Clubhouse.

FENCING — Workouts and instruction Fridays, 7:30-10:30 p.m., YWCA, 10th & C Sts.

GARDEN CLUB — Meeting March 2, 7:30 p.m., Floral Bldg., Balboa Park.

GLIDERS — Annual Mid-Winter Soaring Championship, Torrey Pines Gliderport, March 5-6.

GOLF — Sign by Feb. 28 for CRA tourney, March 5-6, at Coronado. Call ext. 1111, CRA Clubhouse.

ICE SKATING — GD skate night Thursdays, 6:15-7:45 p.m., Mission Valley Ice Arena.

RADIO CLUB — Meeting March 3, 7:30 p.m., CRA Clubhouse.

RIDING CLUB — Meeting March 9, 7:30 p.m., CRA Clubhouse.

ROCKHOUNDS — Meeting March 9, 7:30 p.m., CRA Clubhouse.

SCULPTURE — Workshop sessions Mondays, 7:30-10:30 p.m., CRA Clubhouse.

SPORTS CAR CLUB — Meeting March 9, 7:30 p.m., Convair executive dining room, Pacific Hwy.

TENNIS — Sign by Feb. 25 for annual spring tourney, March 12-13, 19-20, 26-27. Forms at employe services and CRA Clubhouse. Call Ray Hardy, ext. 1692, KM.

TOASTMASTERS — Meetings each Wednesday, 4:15 p.m., CRA Clubhouse. Call D. R. Nash, ext. 2059, or Jim DeShazo, ext. 2056, both Kearny Mesa.

TOASTMISTRESSES — Serra Mesa Toastmistresses meet first and third Mondays, 7:30 p.m., CRA Clubhouse.

WIVES — Magic show Feb. 26, 8 p.m., CRA auditorium. Tickets on sale at CRA Clubhouse or at door on night of performance.

Remember! Disneyland, March 26!

Sports Drivers Top Standings

Two Convair Sports Car Club members led their classes in overall standings in the 1965 ASEBRING championship, sponsored by the San Diego Council of Sports Car Clubs.

Final results are based on total points for performance in ASEBRING rallys (All Events But Racing) held by the Council during the past year.

Awards were made in 15 classes, depending upon engine size of cars.

Bill Kirk tied for first in Class A with his Corvette, and Jack Gallant won first-place award in Class F (Lotus).

Other Convair drivers among the 221 placing were: Class A — Roger Hala and Jerry Sturm; Class C — Earl Godenschwager, Howard Peterson, R. C. White; Class D — Bill McQuillen, E. S. "Judge" Penick, P. E. Marenholtz; Class H — Marv Jensen; and Class L — Joan Kirk.



HIGH-POINT DRIVERS — Bill Kirk and Jack Gallant of CRA Sports Car Club won high-point honors in their respective car classes in overall standings of San Diego Council of Sports Car Clubs during last year. Kirk drives a Corvette; Gallant, a Lotus Elite.

Call For Tee Time At Golf Tourney

Tee times for the CRA golf tourney March 5-6 at Coronado may be reserved between today (Feb. 23) and next Monday (Feb. 28) through CRA Headquarters, ext. 1111, KM, Commissioner Ken Wulfemeyer announced.

Magic Show To Be Feb. 26

Twelve members of the San Diego Junior Magicians' Club will present a magic show at 7:30 p.m. Saturday (Feb. 26) in the CRA Clubhouse under sponsorship of Convair Wives Club.

Sleight of hand, illusion, and juggling acts will be presented. The show will be open to the public with a donation of 50 cents for adults and 25 cents for children under 12. Refreshments will be served at intermission.

The Junior Magicians' Club is an organization of junior and senior high school age boys who practice magic as a hobby.

Two of the young magicians to perform in the Saturday show are sons of Convair employes.

John Streiff, 17, the son of Morris Streiff of Dept. 596-0, is president of the group and will perform an illusion titled "Temple of Benares." Scott Beatty, 13, son of John W. Beatty of Dept. 512-0, will present stage magic feats called "Vampire Block" and "Strato-spheres."

Passing of a sword "through" a spectator, a dancing cane act and two performances involving live doves will be among the "mysterious happenings" to be created by the troupe.

Tickets are available at the CRA Clubhouse and will be sold at the door.



NAVY TOUR — RADM Pierre Charbonnet, left, U. S. Navy Commandant, Eighth Naval District, gets close look at F-111 during recent tour of Fort Worth division. Hosts are J. T. Cosby, vice president-111 programs, and Capt. W. A. Mackey Navy Deputy AFPR.

SLV-3, Centaur Briefings Held

About 100 key government, military and aerospace industry engineers and scientists were at the Convair division's Kearny Mesa plant last week attending Atlas SLV-3 and Centaur familiarization courses.

The courses were designed to report the current status of both systems.

Grant L. Hansen, vice president for launch vehicle programs, was host for both groups.

Among those attending were several from NASA and Air Force officers from a number of locations including both the Eastern and Western Test Ranges, the Air Force Systems Command, Space Systems Division and the Strategic Air Command.

Industry representatives included personnel from Jet Propulsion Laboratory, Pratt and Whitney, Hughes, TRW, Bell Communications and Aerospace Corp.

LUND PRESENTS ENGINEER PAPER

Harry Lund, supervisor of maintenance planning in Convair plant engineering, presented a paper, "Industrial Engineers and Planned Maintenance," at the Feb. 17 meeting of the American Institute of Industrial Engineers in Mobile, Ala.

SLV-3 to Boost Orbiter For Moon Photo Task

Atlas SLV-3 No. 5801, which is scheduled to boost the United States' first Lunar Orbiter into space June 10, was rolled out of the Convair division's Kearny Mesa factory Feb. 11 and was scheduled to arrive by truck last weekend at Cape Kennedy.

The Atlas will be mated to a Lockheed Agena-D second stage vehicle with the Lunar Orbiter spacecraft and its shroud, both built by Boeing, setting atop the two vehicles for liftoff from NASA's Complex 13 at the Cape.

Lunar Orbiter's 850-pound spacecraft is designed to orbit within 30 miles of the lurain (the lunar surface) and take photos that will show objects about a square yard in size. The photos are to be developed in flight and transmitted by radio. The extensive photo coverage of the lunar surface is to aid in selection of landing areas for Project Apollo manned flights.

Jim Von der Wische, Convair's program manager for NASA SLV-3 programs, said SLV-3 No. 5801 left the Kearny Mesa plant on schedule due to excellent work by personnel under the direction of Larry Tuttle, factory checkout foreman. NASA's Langley Research Center manages the Lunar Orbiter program for the NASA Office of Space Sciences and Applications.

Atlas SLV-3 is to lift the Agena and Orbiter to an altitude of 82 nautical miles about 350 nautical miles downrange with booster engine cutoff at 129 seconds and sustainer engine cutoff at 290 seconds. The shroud covering the Orbiter spacecraft is to be jettisoned following Atlas booster separation.

Agena's engines are to put the Agena-Orbiter into a 100-mile-high "parking orbit" with its first burn. After coast to a translunar injection point, they are to refire and push the spacecraft to escape velocity. The Lunar Orbiter spacecraft will then separate and begin a three-day coast toward the moon.

Lunar Orbiter's engines will be used to correct its course 10 hours after launch and, if needed, again 50 or more hours after launch.

The camera to be used by Orbiter has two lenses, one a wide-angle. Photographs are to be made shortly after lunar sunrise when shadows are near maximum to show height and slope of lunar mountains and craters.

A "site search" of an area 120 miles long for a potential Apollo landing can be performed in 13 orbits. The photographic "mission" is to be completed in 30 days but transmission of environmental and performance data is to continue for 11 months. Included will be information on the size, shape and gravitational potential of the moon and micrometeroid flux and radiation dosage in the lunar environment.

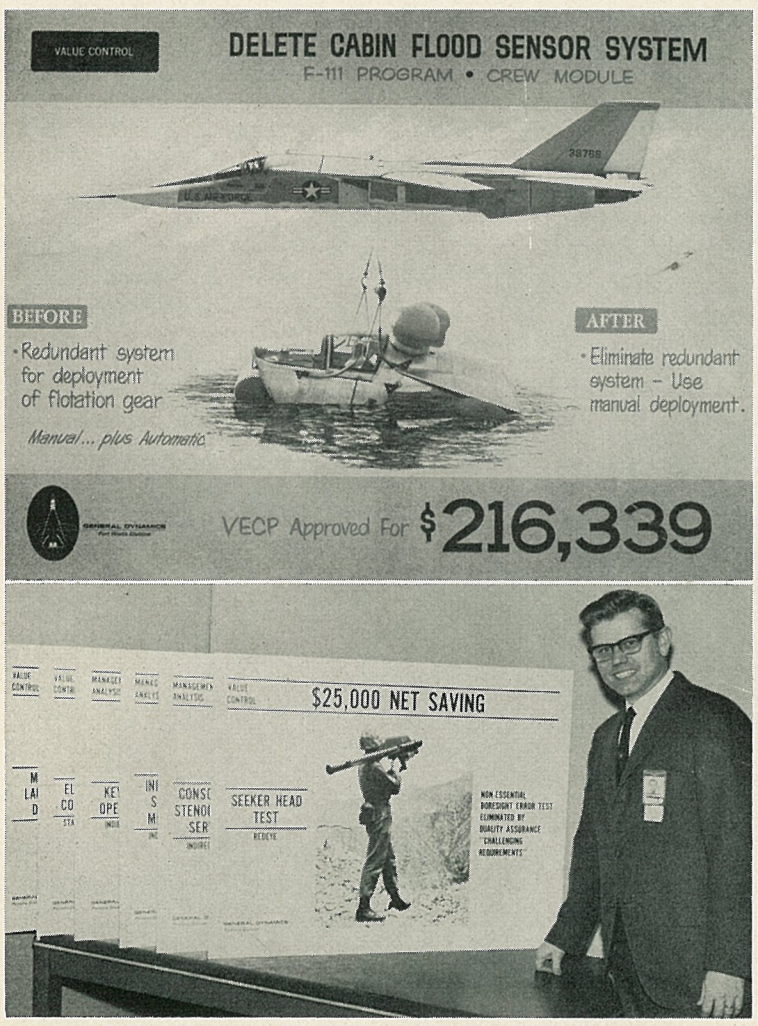
The three vehicles to be used in the Lunar Orbiter launch will be combined as one functional unit for launch countdown with personnel at both the Eastern Test Range and Deep Space Network being informed continually of countdown progress. A delay of more than two hours in countdown may require rescheduling the launch a day or a month later.

Convair's Orion H. Reed, who has been supervising Atlas launches at Cape Kennedy for years will be launch conductor.

After the Agena separates, mission control will be transferred from the Cape to the Space Flight Operations Facility in Pasadena. Communications with Orbiter will be maintained by Deep Space stations in Goldstone, Calif., Madrid, Spain, Woomera, Australia, and Johannesburg, South Africa.

Von der Wische said current NASA plans call for five Lunar Orbiter spacecraft to be launched by Convair SLV-3s and Agena vehicles.

During launch, solar panels of the Lunar Orbiter spacecraft will be folded under its base and its antennas will be held against its side, creating a 5-foot by 5½-foot package inside the shroud. In space, the antenna booms will extend 18½ feet and the solar panels 12 feet.



EYECATCHERS — Typical of posters explaining cost reduction ideas adopted during 1965, which will be displayed in March and April at Department of Defense briefings in five different states, are these from General Dynamics divisions. At top is one of number Fort Worth division will display. Below, Ron Van Paris gives final check to posters submitted by Pomona division.

Flight Hours Continue To Pile up For F-111s

Air Force and Navy F-111s had logged over 568 hours of flight on 379 test missions through Feb. 14. Supersonic speeds were reached on 120 of these flights.

The nine F-111As amassed over 490 of these flight hours on 323 missions; three Navy F-111Bs made 56 flights totaling over 78 hours.

Included in recent developments was a 1,844-mile flight of F-111A No. 3 from Edwards AFB, Calif., to Eglin AFB, Fla., to test the variable-wing fighter's navigation system. It was the airplane's longest non-stop flight.

Fred Voorhies piloted the plane while A. L. Holton served as systems operator.

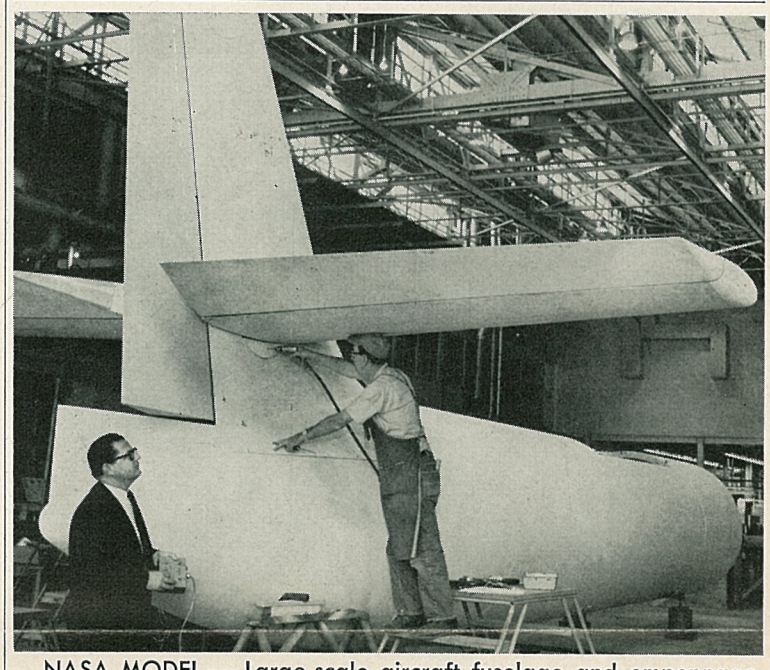
Category II testing of F-111A No. 8 at Edwards included a second aerial refueling test. F-111A No. 9, upon completion of current checkout flights by Air Force acceptance crews at Fort Worth division, will join in Category II testing at Edwards.

Still another F-111A — No. 10 — will be flown to Edwards after completing Company and Air Force acceptance flights, probably sometime next month. No. 10 will be subjected to temperatures as low as 40 below zero in Edwards' "arctic hangar." The adverse-weather tests are slated to run about three months.

At Fort Worth, flight tests for propulsion, stability and control, and flutter continue on airplanes No. 1 and 2. And Nos. 6 and 7 are completing further tests preparatory to delivery to Edwards and Eglin, respectively.

No. 3 continued tests of terrain-following radar, attack radar and navigation systems at Edwards, and No. 4 is making high-lift tests to determine the plane's maximum lift and stall characteristics.

At Eglin AFB, No. 5 is being used in full-scale subsystems tests of electronic countermeasures and traffic-control systems.



NASA MODEL — Large-scale aircraft fuselage and empennage, built by Convair for use by NASA as wind tunnel model in research on low-speed aircraft characteristics, receives finishing touches before shipment to Ames Research Center. Keith Alexander (left), Convair low speed wind tunnel design engineer, operates elevators by remote control while Lou Goggin of Convair model shop installs fairing on vertical stabilizer.

Fuselage Model Built For NASA In Short-Haul Transport Study

A fuselage and empennage designed and built at Convair for NASA's Ames Research Center, Moffett Field, Calif., will help NASA research engineers obtain low-speed aerodynamics characteristics of short-haul transport-type aircraft. Types studied could fly in and out of small city airstrips with landing fields of perhaps less than 2,000 feet.

The large-scale wind tunnel model of wood reinforced with steel has moved out of the San Diego plant bound for Ames where it will be tested in the center's 40x80-ft. low speed wind tunnel. Different wing configurations, designed and fabricated at Ames, will be attached during tests to ascertain the wing design which would give a propeller-driven plane of the future the best short take-off and landing capabilities.

Convair's low speed wind tunnel won the contract last summer for design and construction of the STOL model's fuselage and empennage, and a transport carriage to support it. Convair's bid, in the neighborhood of $85,000, was lowest of those submitted by four companies.

P. N. Bosch, Convair aerodynamics lab group engineer responsible for the project, said that the low speed wind tunnel was in complete charge of the entire program, from proposal to shipment. Wind tunnel engineers did all the preliminary and detailed design and were responsible for construction in-plant. Tool manufacturing at Lindbergh Field plant (Dept. 401) was called upon for all metal fabrication and engineering prototype facility's model shop (Dept. 509) did the wood work, assembly and rigging.

The fuselage is 46 feet long and six feet in diameter. The vertical stabilizer stretches to 14 feet high from the base of the fuselage. The horizontal stabilizer measures 21 feet across.

The fuselage is built in five sections: a detachable nose section, oil cooler section; wing-support center section with two hinged access doors; aft-blower compartment section with a structural member at the bottom for tail strut attachment and a lifting lug capable of supporting 6,000 lbs.; and tail cone section with vertical tail mounting structure and a hinged access door.

An important feature of the versatile model is the alternate mounting on the vertical tail to provide two positions of the horizontal tail. This transforms the plane model from a low horizontal tail craft to T-tail design, depending upon the type of wing attached, S. A. Griffin, senior design engineer, explained.

The horizontal tail, as a whole, can be set manually in a range of incidence of plus or minus 20 degrees by means of indexed bolt holes for five locations.

Elevators and rudder are equipped with internally-mounted actuators for plus or minus 30-degree deflection by remote control.

The Convair wind tunnel is providing design, construction, and installation of position indicating devices for the remote-controlled empennage surfaces.

The steel 10x18-ft. transporter is designed to support the 30,000-lb. weight of the assembled model.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 19, No. 5 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, March 9, 1966

Matting Line Modified

Landing mat production facilities at Convair division, modified to fabricate new-type portable airfield matting for the Air Force, passed the first qualifying hurdle late last month.

Convair will begin production at the end of March on 5,000,000 square feet of portable matting under a contract from Kaiser Aluminum Chemical Corp., Oakland, Calif. Kaiser is prime contractor with the U.S. Army Waterways Experiment Station, Vicksburg, Miss., acting as contracting agency for the U.S. Air Force.

Kaiser and Waterways Experi-

(Continued on Page 2)



INCOME UP — Roger Lewis issued his annual report to shareowners last week.

Backlog Increase Noted In GD's Annual Report

(Following is the text of a letter to shareowners from Roger Lewis, General Dynamics president, included in this year's annual report. Copies of the report are being sent to those participating in the Savings and Stock Investment Plan who chose to invest in GD stock.)

Net earnings of General Dynamics Corporation in 1965 increased for the fourth consecutive year. Regular dividends on the common stock were resumed for the first time since 1961. The development on the variable-sweep wing F-111 has been proceeding well. Marine systems and tactical weaponry and support equipment have shown continued growth. Electronic and communication product operations have responded well to the changes in organization and market strategies that were mapped in the previous year. Our substantial commercial operations have continued to make satisfactory progress. In spite of a slight decline in total sales, operating margins again showed improvement.

SALES AND EARNINGS. Consolidated net sales of General Dynamics Corporation and subsidiaries for the year ended December 31, 1965, were $1,472,785,201, compared with $1,579,862,316 in 1964.

Deliveries to various services and agencies of the United States and Canadian Governments in 1965 accounted for approximately 78% of total sales. This Government segment includes aircraft, space systems, tactical weaponry and support equipment, and shipbuilding.

Sales to industrial and commercial customers—for electronic and communication equipment, coal and lime, nuclear reactors, building materials, machinery and compressed gases—accounted for 22% of sales.

Consolidated net income for the year ended December 31, 1965, was $49,268,929, equivalent to $4.48 per common share after provision for dividends on preference stock. This compares with consolidated net income in 1964 of $42,611,105, equivalent to $3.77 per common share after provision for dividends on preference stock.

Previous to the 1965 year, we did not record profit on the F-111 tactical fighter program because of the uncertainties inherent in a fixed-price incentive contract which involves such a considerable advance in technology. The excellent progression of the test phase has made it reasonably certain that the research, development, test and evaluation contract for 23 aircraft will be profitable. Therefore, we have been recording modest earnings on the program during the second half of 1965.

BACKLOG. Backlog of funded orders at December 31, 1965, was $1,295,000,000, compared with $1,129,000,000 a year earlier.

Although we have received a letter of intent for initial procurement of 431 production F-111 aircraft, with a potential value in excess of $1,500,000,000, a definitive contract in still under negotiation. Potential sales for this, or for other programs which are still being negotiated, will not be included in backlog figures until definitive contracts have been signed.

CAPITAL EXPENDITURES. During 1965 capital expenditures amounted to $48,579,408. A large part of this investment will provide for a substantial expansion of our commercial operations, particularly in compressed gases and lime products, and for automation and modernization of production facilities for mining and electronic products. The balance was used primarily for improvement of facilities at our shipbuilding and tactical missile operations.

PREFERENCE STOCK REDEMPTION. At mid-year the Corporation called for redemption approximately 52.7% of the outstanding preference stock at a total price of $54,682,639. This was paid partly out of company funds and partly with a $25,000,000 increase in long-term borrowing from the Prudential Insurance Company. Since the interest rate on debt, in effect, amounts after taxes to only half the cost of dividends on the preference stock, the result of the redemption is to reduce the annual cost of capital funds to the company.

MAJOR PROGRAMS. Sales and new orders for shipbuilding operations reached a peak in 1965. The shipyard at Quincy, Massachusetts, acquired in 1964, is one of the best equipped in the United States and has facilities to build ships of a size well beyond the capacity that exists or could economically be created at the Groton, Connecticut, yard. As a result, in addition to our traditional role as a leading submarine builder, we also have the physical, technological and managerial capacities to undertake surface ship projects of any size or scope.

The Electric Boat division, utilizing both its Groton and Quincy yards, is building or has under contract 14 nuclear submarines and is overhauling and retrofitting four of the earlier series of Polaris submarines. In addition, as of January 1, 1966, we had contracts for

(Continued on Page 3)

Customer Costs Cut In Economy Effort

General Dynamics' Corporate-wide Cost Reduction/Profit Improvement program achieved total results of $88.8 million during 1965, Max Golden, Corporate vice president, announced this week.

The sum exceeds 1964 performance by 15 per cent.

Golden said that of the total amount, $31.6 million represented lower costs to General Dynamics and $57.2 million was in reduced procurement costs to the Corporation's customers.

Of General Dynamics' portion, $20.5 million was in hard savings and $11.1 million in cost avoidance.

The total effort was the result of Cost Reduction/Profit Improvement programs regularly pursued at the various divisions, Golden explained, and represents continuing fulfillment of the Corporation's pledge to President Johnson for "cost efficiency, product reliability and schedule integrity in each of its undertakings" **(GD/NEWS, Jan. 29, 1964).**

Over 6,500 individual cost reduction actions were initiated during the year within General Dynamics, Golden reported, originating from all levels of personnel and covering a wide spectrum of improved business operating conditions, ranging from facility alterations, computer equipment modification and utilities conservation down to individually minor but collectively substantial cost saving actions.

"The vital importance of these efforts cannot be stressed too strongly," Golden said. "Divisions are enjoined to maintain and exceed in 1966 their excellent performance in 1965."

* * *

Cost reduction representatives from various General Dynamics divisions will gather in Washington, D. C., in late April to take part in a workshop-seminar to discuss current techniques and new approaches.

* * *

First of a series of Advanced Planning Briefings, featuring poster displays from major defense contractors depicting typical cost reduction achievements, was held last week in Boston.

The Briefings are sponsored by the Department of Defense and the National Security Industrial Association. General Dynamics divisions are prominently represented. Next stop for the exhibits is this week in Atlanta, followed by St. Louis, March 16 and 17, San Francisco, April 12 and 13, and Washington, D. C., April 27 and 28.

Air Turbulence Study Pursued

Convair division this month is completing a design study of a system to record in-flight data which, in the future, may help jet transport pilots cope more effectively with atmospheric turbulence.

The study program is funded under a research contract from the Federal Aviation Agency's Safety Division, Washington, D. C., and is part of FAA's continuing program of flight safety research.

Convair is establishing design criteria of an automatic data recording system to record motions of aircraft in turbulent flight conditions and the corrective responses of pilots to those motions. The system will measure the aircraft's three axes of motion—pitch, roll, and yaw—and the pilot's control inputs. Also, sensors installed in the airplane will measure numerous functions, including acceleration, velocity, and displacement. Data will be recorded on magnetic tape for later analysis, R. L. Runnalls, Convair manager of the FAA study, said.

"We are making no attempt to gather information on pilot psychological reactions, only on how the pilot physically counters turbulence-generated motion of the airplane through corrective control system manipulation," V. J. Schack, group engineer in charge of electrical design, explained.

Working closely with Schack have been F. W. Wundrow, senior flight test engineer, who is responsible for data measurement and analysis requirements, and C. R. Lewis, electronic engineer, who has designed the data recording system.

T. W. Sanford Jr. of the FAA Washington office is coordinating

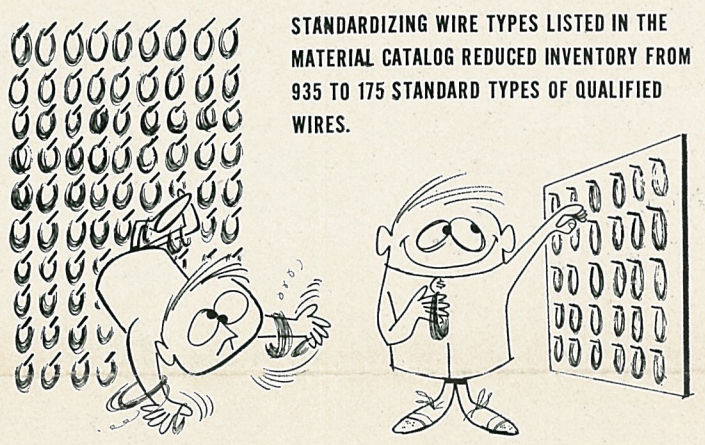
(Continued on Page 2)

Get Your Tickets NOW For Disneyland, Mar. 26

ELECTRONIC PRODUCTION STANDARDIZATION

SAVES $158,368

STANDARDIZING WIRE TYPES LISTED IN THE MATERIAL CATALOG REDUCED INVENTORY FROM 935 TO 175 STANDARD TYPES OF QUALIFIED WIRES.



GENERAL DYNAMICS Convair Division

SAVINGS RESULTED FROM VALUE ENGINEERING

ON DISPLAY — This is typical of posters which are on display at key cities, telling cost reduction story. General Dynamics divisions are participating, as are all major defense concerns.

ES/CIP Savings in 1965 Double Previous Year's

Cost reduction as a result of Employe Suggestions and Cost Improvement Proposals adopted at General Dynamics divisions during 1965 totaled an impressive $5,852,236, Algie A. Hendrix, Corporate vice president-industrial relations, has announced.

The sum is more than double savings accomplished in these programs during 1964.

The ES/CIP system is one part of General Dynamics' broad Cost Reduction/Profit Improvement program **(GD/NEWS, Jan. 26, 1966).**

"This is a showing of which we can be proud," Hendrix commented. "Although virtually all phases of our broad efforts in cost reduction involve direct employe participation, this program probably represents wider participation in point of numbers than any other, and for the most part at a 'grass roots' level. These are tangible actions toward improving efficiency and giving our customers more for their money."

Targets for 1966 have been set by participating divisions, totaling $6,042,700.

During 1965 Fort Worth division led all others in total dollar savings with $2,391,411. Electric Boat was second and Convair third.

Pomona division led in the number of ESs and CIPs submitted per 100 employes and in the percentage approved. Fort Worth was next, followed by Convair and Electro Dynamic.

Convair Scientists Complete Research on Artificial Heart

Scientists in the Convair division's life sciences department in San Diego have completed a detailed study to show how development and installation of artificial hearts could save a half million lives in the United States annually by 1975.

Convair's six months study, funded by the National Heart Institute, recommends immediate use of U.S. Air Force aerospace program management and quality control techniques in development of a fully implantable artificial heart and a comprehensive program for installation of 600,000 per year within 10 years.

Details of the study are contained in seven task reports and a summary totaling 1,500 pages and 2,700 references. A PERT chart on objectives to be accomplished by month and year is included.

Dr. William A. Shafer, neurologist, neurosurgeon and aerospace medicine specialist who served as program director, said probably no other single program envisioned today encompasses such a

(Continued on Page 2)

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between March 1 and March 15.

Thirty-year: Dept. 031-0, J. S. Bryant; Dept. 041-0, R. O. Funke; Dept. 744-0, L. Fischer; Dept. 972-0, J. F. Good.

Twenty-five year: Dept. 057-0, R. T. Haas Jr.; Dept. 130-1, D. M. Zaiser; Dept. 143-0, W. A. Wade; Dept. 149-2, C. E. Shyler; Dept. 420-7, J. A. Liegl; Dept. 756-0, J. E. Nixon; Dept. 835-1, J. M. Opocensky; Dept. 847-1, M. Formanek; Dept. 957-0, J. G. Sugg; Dept. 959-0, G. R. Gray, R. L. Weaver; Dept. 963-8, L. G. Walton Jr.

Twenty-year: Dept. 041-0, E. W. Marshall; Dept. 205-0, J. S. Littell; Dept. 511-1, M. A. Baird; Dept. 957-0, K. L. Sullivan; Dept. 972-0, M. Prince; Dept. 987-0, B. L. Kite.

Fifteen-year: V. D. Baillif, B. C. Vilardi; Dept. 041-0, R. J. Norman; Dept. 101-1, V. J. Neitzie; Dept. 101-7, J. W. Spillman; Dept. 113-0, J. A. Wilson; Dept. 127-0, G. W. Vance; Dept. 130-0, D. B. Graham, P. F. Veal; Dept. 143-5, W. A. Folsom Jr.; Dept. 170-1, N. L. Gooley; Dept. 170-2, R. H. Bacon; Dept. 250-0, R. L. Leib; Dept. 250-5, W. R. LaBounty; Dept. 401-4, R. H. Cowie; Dept. 512-2, G. E. Taylor Jr.; Dept. 526-0, A. J. Gillette Jr.; Dept. 543-5, J. A. Turner; Dept. 553-0, R. J. Reyburn; Dept. 565-0, M. M. Sherman.

Dept. 744-0, E. A. Gooch; Dept. 756-0, G. H. Goebel; Dept. 802-0, H. M. Medeiros; Dept. 833-1, M. J. Giertz, L. H. Lavelle; Dept. 835-4, C. D. Thomasson; Dept. 836-1, A. S. Borek; Dept. 954-2, E. A. Brook Jr.; Dept. 957-0, L. E. Cupp, E. F. Vaughn; Dept. 961-8, R. F. Crupi; Dept. 978-3, J. L. Brown; Dept. 989-0, C. L. Dunlavey.

Ten-year: Dept. 130-1, L. E. Taylor; Dept. 140-1, M. R. Holmberg; Dept. 142-2, N. R. Straub; Dept. 143-4, F. Fernandez; Dept. 143-5, J. M. Baker; Dept. 146-5, D. L. Faucher; Dept. 170-9, B. H. Grellson; Dept. 191-0, W. McColley; Dept. 192-0, A. G. Angus; Dept. 193-1, K. H. Bruner Jr.; Dept. 197-0, H. T. Armitage; Dept. 250-1, M. C. Escareno; Dept. 250-6, M. Vigliotti; Dept. 300-3, F. L. Barton; Dept. 401-2, N. A. Inkel; Dept. 460-0, W. Greenwood; Dept. 511-1, J. J. Anderson Jr.

Dept. 521-6, D. J. Wright; Dept. 524-0, L. H. Smith; Dept. 584-1, A. W. Prichard Jr.; Dept. 589-2, D. N. Fredericksen; Dept. 591-0, R. C. Steele; Dept. 595-0, C. E. Reid; Dept. 731-0, E. G. Gilbert, G. W. Price; Dept. 756-0, D. E. Tibbs; Dept. 780-1, W. Herman, E. J. Wilson; Dept. 780-4, R. J. Quick; Dept. 816-1; R. F. Patterson; Dept. 818-1, G. E. Brown, P. E. Miller; Dept. 819-0, V. N. Fisher; Dept. 833-1, J. W. Costley, M. Lilio; Dept. 835-2, R. Surprenant.

Dept. 835-4, C. M. Bishop; Dept. 835-5, S. Williams; Dept. 845-4, D. L. Finney; Dept. 847-1, N. Kosmas; Dept. 950-4, J. S. Berggren; Dept. 954-1, E. R. Minton; Dept. 950-8, F. F. Stanford; Dept. 956-0, C. V. Pereira; Dept. 957-0, G. I. Foster; Dept. 959-0, M. Vukelich; Dept. 963-3, J. D. Simpson; Dept. 964-2, J. A. Eaton; Dept. 964-3, J. Bik; Dept. 964-6, J. F. Riley; Dept. 967-3, D. B. Sanford; Dept. 967-4, S. D. Loucks; Dept. 973-0, F. R. Lee Jr.; Dept. 973-3, R. E. McCarthy, W. D. Kurtz; Dept. 979-1, W. B. Phillips; Dept. 979-2; P. W. Kellett; Dept. 979-3, R. T. Phelps; Dept. 985-1, J. Cook, L. E. Enz Jr., R. J. Ingles; Dept. 985-4, J. J. Daly; Dept. 989-0, C. W. Neal, E. E. Senior.

STROMBERG-CARLSON

Fifteen-year: Dept. 8623, R. P. McGhen.

Ten-year: Dept. 8510, N. B. Foughty; Dept. 8530, J. Rice; Dept. 8620, D. R. Altschaeffl; Dept. 8621, E. M. Klund; Dept. 8624, B. J. Webb; Dept. 8710, B. J. Devorraux; Dept. 8810, W. R. Walter.

Retirements

CONVAIR

BURCH—Virginia S., Dept. 15-0. Seniority date July 8, 1954, retired Jan. 31.

HAMILTON—William J., Dept. 838. Seniority date Dec. 14, 1950, retired Jan. 14.

OBERG—Al B., Dept. 509-1. Seniority date June 15, 1936, retired Feb. 11.

SCOTT—John E., Dept. 142-2. Seniority date Oct. 25, 1963, retired Jan. 22.

Personals

The family of Arthur Stanley Haines acknowledges with deep appreciation and thanks the many Convair friends for the beautiful flowers, contributions and expressions of sympathy at his death. They did much to ease the sorrow.

Mrs. Betty J. Haines
Patricia and Priscilla Haines

* * *

My heartfelt thanks goes to all my General Dynamics friends for their thoughtfulness and consideration at the death of my husband.

Helen Pemberton, GD/NEWS.

Invention Disclosures

CONVAIR

CARLSTON—C. E., G. D. MAGNUSON, P. MAHADEVAN, A. R. COMEAUX, Dept. 596-0. High Efficiency Source for Metal Ions.

HOYT — W. E. Jr., Dept. 492-0. Plasma Flame — Burnishing Boron Fibers, and Generating a Coating Containing Nitrogen (Or Other Beneficial Chemicals).

NOWAK — G. H., Dept. 596-0. Resonance Tuned Gravity Gradient Device.

ROLLA — C. P., Dept. 491-0. "O"-Ring Remover.

SHUKOV — G. A., Dept. 553-2. Passband Monitor and Bipolar Pulse Amplitude—Width Discriminator.

General Dynamics News

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Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

Awards

CONVAIR

Employe Suggestion awards approved for the week ending Feb. 11.

Dept. 002, R. A. Davis, J. Ramirez; Dept. 123, A. J. Nybo, D. R. Pierce; Dept. 143, S. D. Haas; Dept. 454, R. Daniel; Dept. 506, L. G. Chase; Dept. 715, J. Friel; Dept. 756, J. W. Reynolds; Dept. 759, E. Caliendo, D. P. Dunican, E. Gabbard; Dept. 972, M. C. Sullens; Dept. 974, O. P. Ray.

Employe Suggestion awards approved for the week ending Feb. 18.

Dept. 002, C. R. Helmken (three awards); Dept. 143, M. E. Howell; Dept. 146, R. De Sola, N. Smith; Dept. 263, L. L. Ripley; Dept. 400, C. D. Guest; Dept. 733, R. E. Reeves; Dept. 744, S. Montoya; Dept. 763, J. D. Willingham; Dept. 780, J. E. Kelley; Dept. 847, H. A. Adams; Dept. 972, S. L. Cowley, R. L. Robinson, W. A. Slagle; Dept. 973, E. A. Ulfers; Dept. 987, H. R. Short.

In-Plant Training

ORIENTATION

NEW EMPLOYES—Educational services staff, Lindbergh Field, ext. 491. Bldg. 14 auditorium, Tuesday, March 29, 8 a.m. and 4:30 p.m. Kearny Mesa, ext. 1931, Bldg. 17, Room 3, Monday, April 4.

PROFESSIONAL/TECHNICAL

SATS-MATS WELDING — Twenty-four hours, March 14. Bldg. 2, Mats line, Lindbergh Field. Wayne Turner, ext. 491.

AIRPLANE MECHANICS (On-the-Job Training) — Eight hours per day, 26 weeks, Lindbergh Field, Bldg. 3. Coordinator, Wayne Turner, ext. 491, Lindbergh Field.

ENGINEERING HELPER TRAINING (On-the-Job) — Dave Wyche, Lindbergh Field. Eight hours per day, 20 weeks: Jan. 27-June 21; Feb. 14-July 1; March 7-July 22, Bldg. 5, Lindbergh Field plant. For information call Harry Miller, Kearny Mesa, ext. 1931; Wayne Turner, Lindbergh Field, ext. 491.

PLASTIC FABRICATION TRAINING (On-the-Job) — Lindbergh Field. Eight hours per day, 16 weeks, Jan. 20-June 10. For information call Wayne Turner, Lindbergh Field, ext. 491.

MILLING MACHINE OPERATORS—(On-the-Job Training) — Eight hours per day, 26 weeks, Lindbergh Field, Bldg. 3. Coordinator, Wayne Turner, ext. 491, Lindbergh Field.

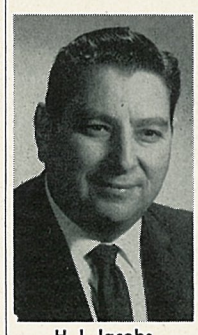
RELIABLE ELECTRICAL CONNECTIONS — Educational services staff. For information and quota call ext. 1931, Kearny Mesa. Weekly 7 a.m.-3:45 p.m., Bldg. 17, Room 10, Kearny Mesa.

OUT-OF-PLANT

TUITION REFUNDS — Employes must submit a request (Form A346) to educational services no later than THREE weeks after the starting date of the class. Requests submitted after this time will not be approved.

Jacobs Named To Mkt. Post

Howard I. Jacobs has been appointed director of marketing for Data Products division of Stromberg-Carlson, according to Carl V. Shannon, general manager.



H. I. Jacobs

Jacobs previously was manager of Business Information Control Systems for RCA Electronic Data Processing, Cherry Hill, New Jersey.

As director of marketing, he will be responsible for divisional planning and all divisional marketing activities including product planning, commercial and military sales, product support, applications engineering, contract administration, and advertising.

Jacobs joined RCA in 1959 and held marketing positions on the corporate staff at Camden, N.J., and the West Coast division, Van Nuys, Calif. Before joining RCA, he was with Space Technology Labs, Redondo Beach, Calif.

He also served as co-director of the Human Psychology Laboratory at the University of California and the Cardiovascular Laboratory at the University of California at Los Angeles. Jacobs received an AB degree from UCLA and an MS in physical sciences from USC.

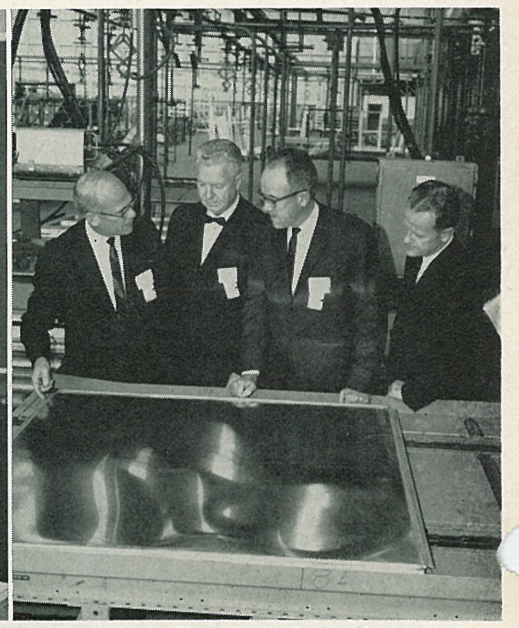
Scenic Slide Show Scheduled Mar. 16

"Contrasts in Scenic Grandeur," an automatically programmed slide show by Larry and Edith Tuttle with recorded narration and musical background, will be presented under auspices of CRA Adventurers at 8 p.m. Wednesday (March 16) in CRA Auditorium at KM.

Slides were taken by the Tuttles at Sequoia and Death Valley.

Dick Bowen, Adventurers' commissioner, said the public is invited, no admission charge.





MATS MILESTONE — In photo at left, R. E. Perry, Kaiser Aluminum Chemical Corp. landing mat project manager; C. L. Jackson, Convair project manager; and J. C. LeBlond, Convair site manager for Kaiser, discuss preliminary acceptance of semi-automated line at Convair. In shot at right, Perry, W. L. McInnis and Robert Turner, U. S. Army Engineers Waterways Experiment Station project engineers, and Jackson examine aluminum mat on line.

Matting Line Modified

(Continued from Page 1)

ment Station officials, in San Diego for preliminary acceptance of the semi-automated line, expressed satisfaction with the production facilities as they reviewed each segment in operation.

Go-ahead has been given for turning out the first 220 mats for test evaluation at Vicksburg Test Center, said C. L. Jackson, Convair landing mat project manager.

The mat line at Lindbergh Field plant has been modified to fabricate a new kind of lightweight aluminum honeycomb core mat, which weighs just 4 lbs. per square foot, in lieu of the die cast core type fabricated for the Marine Corps under a 1961 development contract.

Participating in the Feb. 22 inspection were Robert Turner and W. L. McInnis of the Waterways Experiment Station, project engineers responsible for surveillance of the program. Representing Kaiser were R. E. Perry, landing mat project manager; and J. C. LeBlond, Convair site manager for the Kaiser mat program.

LeBlond, who will be permanently based at Convair during the mat program, has been manager of technical services at Kaiser Aluminium International, London, England, the last 4½ years. With Kaiser Aluminum and Chemical Sales, Inc., for 12 years, he previously had been in charge of technical services in the company's sheet and plate production department at both Oakland and Chicago plants before going to England.

Air Turbulence Study Pursued

(Continued from Page 1)

the study for that agency.

The study has disclosed a high system reliability requirement in view of the long periods of operation without attention, other than change of tapes and occasional functional and calibration checks. In-flight turbulence of sufficient magnitude to be of analytical use, and therefore recorded, will be encountered only about three per cent of a normal airline airplane's flying time. Approximately 100 hours of pertinent turbulence-level flying is anticipated for the average North American continent jet liner per year of flying.

In addition to the engineering design of basic instrumentation hardware for the system, Convair is making a typical installation layout and cost analysis.

WISDOM SERVING ON URBAN LEAGUE

M. V. Wisdom, Convair director of industrial relations, was elected last week to office in the San Diego Urban League. He now serves as second vice president.

Three Repeat Victories In 'Do Good Work' Race

Three Convair organizations scored repeat wins in January Craftsmanship competition and a fourth recorded its fifth victory since entering competition in 1964.

Repeats were chalked up by Dept. 979's Complex 36B at Eastern Test Range with a quality index of 126.1, Dept. 016 (electric bench) at Lindbergh Field with a quality index of 123.1, and Dept. 732 (sheet metal) at Kearny Mesa with a quality index of 112.9.

Recording its fifth Craftsmanship win was Dept. 985's material control section at Western Test Range with a quality index of 120.3. An index of more than 100 indicates improvement.

Complex 36B's January win for ETR was its third straight and the fourth since it entered competition last April.

Personnel at Complex 36B had improved their performance from .206 defects per 100 manhours during the past six months to .027 for the past three months. Each employe will receive a set of space playing cards and a letter of commendation from Jack L. Bowers, Convair division general manager.

Dept. 016 at Lindbergh Field has reduced its average number of defects per 100 manhours from 1.47 for the past six months to .34 for the past three months.

A Craftsmanship certificate will be mailed to the home of each employe.

Dept. 732 at Kearny Mesa, scoring its third win, had reduced rejection rate from 3.06 per 100 manhours during the six month period to 1.74 during the past three months. Each member of the department will receive a lapel pin and a letter of commendation.

Dept. 985's material control personnel at WTR recorded their fifth win by reducing parts rejection rate from .219 for the past six months to .071 for the past three months. January rejection rate was a perfect .00.

Material control employes had previously won Craftsmanship honors for four straight months—October, 1964, through January, 1965. As a result of their fifth win this January, each member will receive a silver pin with the number "5" engraved in its center and a personal letter of appreciation.

Craftsmanship program officials have calculated that the division achieved a $2.2 million "cost avoidance" savings last year due to an improvement in "good work" done by division employes. There was an improvement of 18.7 per cent in avoidance of defects over the number during the previous year.

Convair Scientists Complete Research on Artificial Heart

(Continued from Page 1)

spectrum of disciplines involving all the biological, physical and social sciences.

Development of an adequate power source for the artificial heart is considered a critical problem. Studies indicate a rechargeable battery could be used as a stop-gap measure until a suitable nuclear or biological fuel cell can be developed.

The biological fuel cell would derive energy from glucose or fatty acids in the bloodstream. Also envisioned is creation of an "artificial muscle" that would expand and contract in response to an electrical or electrochemical signal.

Materials used in the pump, pacer and power units of the artificial heart would have to maintain physiologic normality in all body organs and have the ability to avoid tissue rejection, prevent clot formation and withstand corrosive effects of body fluids. Blood would have to be maintained without damage at constant temperature and pressure and be suitably oxygenated.

The Convair study indicates a collapsible bag-type blood pump unit can be produced now that will duplicate heart pumping action but would not meet ultimate quality assurance and reliability values. Needed will be a durable material that can be squeezed millions of times by hydraulic or pneumatic pressure without excessive wear or cracking.

Dr. Shafer said the great expense involved in the proposed artificial heart program probably will make government funding or subsidy necessary. The research and development phase would cost between $50 and $75 million.

"No one denies that millions of lives can be saved, but the artificial heart program will have to gain public support," he said.

The goal would be for the artificial heart produced by 1975 to have a safe working life of at least 10 years.

In addition to Dr. Shafer, Convair personnel assisting in the study included Dr. Leland L. Short, Robert Johnson, Jerry Hall, L. T. Gregg, Donald Vorbeck, W. F. MacDonald, R. A. Benson, Ernest Casco, R. Campana, Aaron Wolgin, J. M. Hlavin, S. Cohen, J. J. Beckman and M. A. Newcomb.

CAL. GRADUATE NOW INTERN

Kenneth M. Nomiyama, University of California graduate with an MBA, has joined General Dynamics' intern program and will serve a year at New York Headquarters. Karl Kovac is scheduled to complete his New York tour July 1.

Backlog Increase Noted In GD's Annual Report

(Continued from Page 1)

surface ship work, to be built at the Quincy yard, amounting to $134,624,000, for five large vessels of various types ranging from 18,000 tons to 37,000 tons displacement. We are also in the completion stages of a large contract for three Apollo Instrumentation Ships. This contract, which will exceed $90,000,000, is roughly half shipbuilding and half electronics and represents a collaborative effort under the systems management of the Electronics division, with significant contributions by our Stromberg-Carlson subsidiary and the Convair division.

The results of the research and development phase of the F-111 program to date have been very good. The key element of this revolutionary aircraft—the variable-sweep wing—has worked perfectly from the beginning. The variable-sweep wing makes it possible for a single aircraft to cruise subsonically, to fly supersonically at either sea level or more than 12 miles high, to cross oceans without refueling, and to take off and land from short tactical airfields—a combination of qualities that once would have required several different aircraft.

The various avionics systems, which give the aircraft such military capabilities as finding the target and bombing accurately, are functioning exceptionally well.

The program is on schedule. Some problems are normally expected in the development of such an advanced aircraft, but those that have arisen are yielding to corrective action. Although the R&D program continues into 1968, production of operational-type aircraft begins in 1966 and deliveries will begin in 1967.

The Department of Defense has recently announced that it would ask Congress for authorization for the development, production and deployment of a bomber version of the aircraft, to be known as the FB-111. Should such authorization be granted, it would have an important long-range effect on the overall variable-wing aircraft program. However, initial procurement of such a modified aircraft would, in all probability, be considered a part of the four-year procurement contract for F-111s now under negotiation and may not result in an acceleration of the production schedule in the early years of the program.

Canadair Limited has received a letter of intent from the Canadian Government to produce as prime contractor approximately 125 CF-5 fighter aircraft (to be built under license from Northrop Corporation) for the Canadian Forces Mobile Command and will additionally produce components under subcontract to Northrop for that company's F-5 production in the United States.

Volume of space work has declined since its peak in 1962, but we are continuing established programs, particularly production of Atlas SLV-3 (Standard Launch Vehicle) and of Centaur high-energy upper stages. These production programs, in addition to a wide range of research contracts for other phases of space work, provide the keystone for continued procurement and sales over the next several years.

In the tactical area, production started on the man-carried Redeye air-defense missile. The development program on a new Standard Missile for the Navy (for both air defense and surface-to-surface use) is progressing well. The Mauler battlefield air-defense system program was discontinued during 1965 when the Department of Defense determined that the original requirement for the complete system no longer existed, but elements of the system, successfully demonstrated during the development period, have other applications.

We have begun deliveries to the United States Army of an advanced mobile radio system for field use. The Canadair Dynatrac all-terrain vehicle has received United States Army funding to start advanced production engineering. A new reconnaissance drone, development of which is being jointly funded by Canada, Great Britain and Germany, is well advanced in flight test.

Among our commercial operations, sales of telephone equipment and of compressed gases and affiliated equipment reached new highs. Our commercial electronic lines, particularly of computer-data display equipment, and our several lines of metalworking equipment were expanded. Building material and coal sales were off slightly, but this was offset to a considerable degree by a substantial increase in the sales of lime products.

ORGANIZATION. During the year two separate San Diego-based divisions were consolidated, with the new single division retaining the historic Convair name.

At the beginning of 1965, Stromberg-Carlson division was consolidated with United States Instrument Corporation under the name Stromberg-Carlson Corporation, with General Dynamics obtaining 88½% ownership. In December of 1965 we exercised our option to purchase the minority interest.

EMPLOYES. At the end of 1965, General Dynamics had 84,600 employes, approximately 51,000 of whom are represented by 33 different national, international or independent unions.

During the year we concluded agreements, covering 44,000 of our represented employes, with 75 locals of these unions, with all but one minor contract within the economic guidelines set by the Government.

Among the more significant of these: a four-year agreement negotiated with the Industrial Union of Marine and Shipbuilding Workers of America at the Quincy shipyard; five-year agreements at our Pomona and Convair divisions with the International Association of Machinists; and a five-year agreement with the Rochester Independent Workers at our Electronics division. Early in 1966 we also negotiated a five-year agreement with the International Association of Machinists at our Fort Worth division.

Late in the year the Corporation initiated, subject to share owner approval, a new savings and investment plan for salaried employes. This plan is designed specifically to help attract, motivate and retain capable scientific, professional and managerial personnel. In addition, a similar plan has, in some cases, been negotiated for represented hourly employes and has contributed significantly to the satisfactory conclusion of recent major agreements with several unions.



AIMING HIGH — In tests at NOTS, infantryman's own anti-aircraft missile system, Redeye, was examined by Brig. Gen. E. I. Mueller, U. S. Army, Director of Doctrine and Systems, Office of the Assistant Chief of Staff for Development. He watched General Dynamics' Don Wohlfert, right, fire three rounds at G-2 range last month. Three KD2R prop drones were shattered, the first, at 2,500 feet, by a warhead, the second at 400 feet by an unarmed round, the third at 4,500 feet by another warhead.

Redeye Test Program Ended Successfully

Almost seven years of research and development on the Army's Redeye, the world's smallest known anti-aircraft missile, have come to a successful end at the U. S. Naval Ordnance Test Station in China Lake, Calif.

Developmental testing has been completed there and the weapon will soon go into engineering-service tests at White Sands Missile Range, New Mexico.

The 28-pound Redeye missile/launcher package is designed to be fired from the shoulder of Army or Marine infantrymen in forward combat areas. Management of the program has been at the U. S. Army Missile Command, Redstone Arsenal, Ala., where Col. A. W. Reed is project manager for the joint Army-Marine program.

Feasibility studies began at General Dynamics' Pomona division, following a company proposal to the Army in 1958. Since that time Redeye has undergone a long series of successful firings against a variety of targets, including F-9 jet drones and helicopters.

Simplicity and sophistication have been blended into Redeye to make maximum use of the infantryman as an integrated part of the air defense system. Redeye would be carried into the combat zone in a three-weapon carrying case with each missile already packed in its own launcher ready for use. In combat, the launcher, which is of fiber glass, would be discarded after firing.

In actual use, all a soldier must do to fire Redeye is aim it, flip two switches and press a trigger. Soldiers have fired Redeye and scored direct hits on drone targets after receiving only minimal instruction.

The missile has two stages: the first ejects the missile from the launcher, the second drives it to the target. An infrared seeker mounted in the nose of the four-foot solid propelled missile guides Redeye to the heat source of its target. Redeye is roll fin stabilized and aerodynamically controlled in flight.

In engineering evaluation tests by NOTS, targets have included propeller-driven drones, jet drones and drone helicopters. Some missiles have been equipped with warheads and others with telemetry which examined flight actions.

As a joint development of the U. S. Army and U. S. Marine Corps, each has provided a proportionate share of Redeye development costs. Both services will share in the output of production missiles. Both plan to issue Redeye to combat units as

People Mobility

Interdivisional Tr

(Following are recent person namics divisions. In parentheses the company).

JERAULD E. HILLAKER (19 service engineer, Electronics, San (1955) from Convair to quality mo Carlson, Rochester; **JEFFREY K.** ate Headquarters to business pl Rochester; **ALLAN E. LANGE** (senior flight test engineer, Convai from Convair to General Atomic; from Convair (Alamogordo) to Worth division; **EUGENE W. RI** Fort Worth (Edwards AFB); **RIC** Convair (Cape Kennedy) to systen **L. HARTSHORN JR.** (1953) from Convair to Corporate Headquarters; **LOUIS M. PISZ** (1957) from Convair to Fort Worth (Edwards AFB); **DON E. STEFFE** (1962) from Convair to Fort Worth (Edwards AFB); **LOUIS L. FOWLER JR.** (1959) from Convair (Vandenberg) to F-111 logistics support, Fort Worth.

HARVEY H. LEACH (1961) from Stromberg-Carlson, Rochester to management information supervisor, Electric Boat; **ROBERT C. HECKMAN JR.** (1963) from Pomona to nuclear quality control analyst, Electric Boat.

Top Students Selected For Scholarships

Three outstanding students have accepted General Dynamics' National Achievement Scholarships to assist them in college careers beginning this fall.

This is the second year in which General Dynamics has participated in the national program which specifically singles out Negro students of unusual promise.

The winners this year are Luther C. Davis of New London, Conn., who plans to attend Cornell University, Ithaca, N.Y.; Charles J. Creasey Jr. of Beaumont, Texas, who expects to attend California Institute of Technology, Pasadena, Calif.; Myles V. Lynk III of New York City, who plans to enter Harvard University, Cambridge, Mass.

All three currently are graduating seniors.

Young Davis attends New London High School and plans a career in aeronautical and astronautical engineering. Among many high school activities he was active in drama clubs, directed the senior class play and was a member of Connecticut Boy's State.

Young Creasey, president of the Hebert High School senior class as well as the Science Club and the School Band, also is sports editor of the school newspaper and a member of the Texas State Championship Band. He plans a career in research physics.

Young Lynk attends James Monroe High School and plans to study law. Gold Medal Science Winner in 1963, YMCA "Boy of the Year" in 1964, he is editor-in-chief of the school literary-art magazine and president of the Honor Society.

Achievement Scholarships are a part of the Corporate "Plans for Progress" program, designed to insure equal employment and opportunities for all.

Scholarship certificates will be presented formally to winners at a later date and General Dynamics managements in the areas where the students live and expect to go to college will offer every assistance in pursuing career goals.

Japan Okays Agreement On DYNAPAK

Electro Dynamic division at Avenel, N.J., announced that it has obtained Japanese Government approval of a technical aid agreement with Mitsubishi Heavy Industries, Ltd. of Tokyo to manufacture and sell the DYNAPAK line of high energy metalworking machines. The agreement grants to this large Japanese manufacturer exclusive rights in Japan, Okinawa, South Korea and Taiwan.

General Dynamics' DYNAPAK is an advanced metalworking machine used to forge and extrude complex parts from both conventional and exotic alloys. It works on the rapid expansion of compressed gas to deliver forming energy.

The agreement covers the full line of present DYNAPAK models with sizes ranging from 12,500 foot-pounds to 225,000 foot-pounds.

Other General Dynamics DYNAPAK licensees are Fielding and Platt Ltd., Gloucester, England, and Schloemann A. G., Dusseldorf, Germany. To date, there are ten U.S.-made DYNAPAK machine installations in Japan. Recent DYNAPAK machine orders were reported in England, Germany, France and Spain.

The DYNAPAK principle was an outgrowth of General Dynamics' aerospace work on quick opening valves as the practical solution to taming chemical explosive forming and making it a safe, repeatable, in-plant production machine.

Malaysian Government Orders Score Of CL-41 Trainers From Canadair

One of the largest sales of Canadian aircraft in some time has been revealed with the announcement by Canadair that the Malaysian Government has signed a letter of intent for the purchase of 20 CL-41 jet powered trainer aircraft from the Montreal-located company.

The selection of the same basic Canadian aircraft as used by the RCAF and designated the Tutor, culminates a 2½ year study by Malaysian military authorities.

Delivery of the aircraft will commence in the spring of 1967.

Space Docking Launch Near; Atlas to Loft Target Vehicle

Plans are being completed for Convair's participation in the historic Gemini 8 mission next week which will include in-space rendezvous and target docking maneuvers.

The Convair-built Atlas SLV-3 No. 5302 is scheduled to loft a modified Agena D target vehicle from Launch Complex 14 at Kennedy Space Center into a 185 statute mile orbit next Tuesday, March 15.

Astronauts Neil A. Armstrong, a civilian, and David R. Scott, an Air Force major, are to ride their Gemini 8 spacecraft into space about 100 minutes later atop a Titan 2.

The astronauts are to be placed in a 100 by 168 statute mile elliptical orbit and are to rendezvous and begin the first of four dockings with the Agena during their fourth orbit about 5½ hours after liftoff.

Four Convair division officials were at NASA Headquarters in Washington, D.C., Sunday and Monday for a design certification review. They were Grant Hansen, vice president—launch vehicle programs; R. W. Keehn, program manager—SLV; E. R. McFadden, program chief—Gemini target vehicles; and Thomas J. O'Malley, chief of Atlas space launch operations at ETR.

McFadden and O'Malley are now at the Cape where a simulated launch demonstration for the four vehicles' systems was scheduled today and a pre-mission review by contractors on Friday. Keehn is also to be present for the pre-mission review.

An Air Force Space Systems Division flight-safety review board meeting is scheduled Monday.

Convair's Jack Miller is to be launch conductor for the Atlas SLV and Agena launch.

McFadden said that if problems should develop after the Atlas-Agena launch that force postponement of the Titan 2-Gemini spacecraft launch, Atlas SLV-3 No. 5303, which is also at the Cape, can be readied to launch an augmented target docking adapter (ADTA) for use in docking maneuvers two weeks later.

If the Gemini 8 mission goes as planned, SLV-3 No. 5303 will be scheduled for launch in the Gemini 9 mission and the ATDA will be retained as a back-up docking vehicle for future use.

Convair is integrating contractor for the ATDA with McFadden as project engineer.

In the Gemini 8 mission, Scott is to spend almost three hours outside the spacecraft while the locked-together Gemini and Agena vehicles circle the earth.

After Scott's record "space walk" the Gemini spacecraft is scheduled to maneuver into a different orbit and re-rendezvous with the Agena before splashing down in the Atlantic on March 18 after 45 orbits and about 71 hours in flight.

The Agena target vehicle is to be placed into a 220 nautical mile orbit and will remain in orbit for use by Gemini 10 astronauts in rendezvous maneuvers after they have completed docking maneuvers with their own Agena target.

Five scientific, five technological, and one medical experiment also are to be conducted on the Gemini 8 flight.

Con-Trib-Club Votes Donations

Con-Trib-Club Committee members in a meeting Feb. 24 allocated $10,000 to the San Diego County Branch of the American Cancer Society, $5,000 to the Home of Guiding Hands of the Lutheran Association for Retarded Children for its building fund and $5,000 to the San Diego Crippled Children's Society for its annual Easter Seal campaign.

The donation to the Crippled Children's Society will constitute payment from Convair employes for Easter seals they will receive through the mail.

In other action last month, Con-Trib approved a grant of $12,000 to the San Diego County Heart Association to be used toward purchase of television apparatus for use with cine-angiography equipment at the Heart Center at Sharp Memorial Hospital, gave $1,000 to the Boys' Club of South Bay for its building fund and allocated $250 to the San Diego Juvenile Protective Committee.

At the request of Vandenberg AFB employes, $500 was allocated to the Northern Santa Barbara County Chapter of Muscular Dystrophy Association, $500 to the National Foundation, $500 to the Santa Barbara County Heart Association, $500 to Santa Ynez Valley Hospital, $500 to Guide Dogs for the Blind and $250 for the Elks Recreation Foundation.

On recommendation of Florida employes, $10,000 was pledged to the United Fund and $1,875 to the Jess Parrish Hospital there.

* * *

James W. Hudson of Dept. 759-0 has been appointed to the Con-Trib-Club Committee as U.-W.A. representative. He succeeds Lewis E. Wills.

Youth's Little Joe Model Is a Winner

A young scientist of Bethpage, N.Y., credits Convair's Little Joe II project office for helping him win the rating of "second best rocketeer in the nation."

In writing J. B. Hurt, Little Joe II program manager, Albert Kirchner Jr., 15, said, "With the blueprints and thorough details of Little Joe II that you sent, I was able to build a scale model that took first place in the Junior Division at the Model Rocket Championships at the Aberdeen Proving Grounds." Points gained gave Albert the spot of Reserve National Champion—Junior Division.

TWO VE SEMINARS CONDUCTED AT EB

Ed Heller, manager of cost reduction and value control for the Convair division, and Everett Lindem, educational specialist, presented two 16-hour value engineering seminars last month for Electric Boat division key personnel in Groton, Conn.



MAN OF THE YEAR — Joseph E. Carlin, left, receives desk pen set from James C. Duffy after being named "Engineer of the Year" by Chapter 189 of American Society of Tooling and Manufacturing Engineers.

Tooling Society Picks Carlin As Chapter 'Engineer of Year'

Joseph E. Carlin, inventor of the Convair division's new Dynaflare flare-forming machine, has been named "Engineer of the Year" by the 114-member San Diego Chapter 189 of the American Society of Tooling and Manufacturing Engineers.

James C. Duffy, supervisor of manufacturing development, Dept. 491, at Convair, who has been re-elected chairman of the chapter, presented a desk pen set to Carlin.

Carlin has been a tool development engineer at Convair for the past six years and has spent 20 of the past 30 years in tool development and manufacturing fields.

He has developed many tools and processes for the aerospace industry, including shotgun forming, hydro-bulge forming and 360-degree draw-form bending. He is now working on a new process called CERF (controlled energy-rate forming).

Six members of the ASTME chapter spent Feb. 26 counseling high school seniors on engineering as a career at an annual Career Day program in conjunction with Engineering Week at the University of San Diego.

Lou Whitney of Convair has been elected chapter secretary.

Engineers, Scientists Assisted In Spreading Technical 'Word'

Convair division employes "covered the world" last year in presenting technical papers at regional, national and international meetings of professional and technical societies.

In addition to papers presented at meetings in cities across the United States from San Francisco to New York, presentations were made at meetings in Copenhagen, Denmark; Athens, Greece; Bergen, Norway; Quebec, Canada, and Honolulu, Hawaii.

Division representatives presented a total of 177 papers and prepared 49 articles that were published in technical journals.

Dean H. McCoy, chief of engineering administrative services, said the division has a policy of encouraging participation in technical and professional societies and during the past six years has "made a concerted effort to assist engineers, scientists and specialists in so doing."

A division budget provision makes it possible to obtain authorization to spend 40 hours away from regular duties to prepare technical papers for presentation and publication. (A Paper Review Committee chaired by Karel J. Bossart, Convair technical director, assists in authenticating technical information for presentation or publication and McCoy's office takes care of securing patent, security, editorial and customer clearances.)

Individuals also may be reimbursed for travel and expenses to professional meetings at which they speak, present papers, or even in cases of no direct participation.

"This contributes to professional development which benefits the individual and adds to Company competency as well," McCoy added.

Convair employes who are elected to regional or national offices in technical and scientific societies have their society dues paid and expenses to two annual meetings.

"When an address is given or an article published, this is recorded in the individual's personnel file, helpful when his file is reviewed for promotion."

Typical of professional groups that were addressed last year by Convair representatives were American Institute of Aeronautics and Astronautics, American Physical Society, Institute of Electrical and Electronic Engineers, Society for Automotive Engineers and American Society for Mechanical Engineers.

Also, Society for Nondestructive Testing, Optical Society of America, Aerospace Medical Association, Institute of Environmental Sciences and Society of Aeronautical Weight Engineers.

Publications in which articles written by division personnel appeared last year included Journal of Chemical Physics, Journal of Geophysical Research, Journal of Quantative Spectroscopy and Radiative Transfer, Journal of Aerospace Management, Electronics Design, Hett Ingenieursblad (Belgian publication), Physical Review, Bulletin for the Swiss Society for Electronic Engineers, Journal of Spacecraft and Rockets and Journal of Applied Optics.

McCoy noted that division personnel presented more papers at last year's AIAA annual meeting than representatives from any other industrial division.

Wives' Election Set For March 16

Convair Wives Club will elect officers at the March 16 luncheon meeting at Bali Hai restaurant, Shelter Island.

Social hour will be at 11 with buffet lunch at noon. Price is $2.35, including tax and tip. Reservations must be in by March 14 to either Lou Nordeck, 273-1140, or Sue Cavanagh, 279-1633.

Monthly potluck will be the following Wednesday (March 23).

Human Relations, Social Issues Films Planned

Three series of motion pictures and discussion programs—one on Human Relations, one on Management and Administration and one on Social Issues—have been scheduled for Convair Management Club members in March and April by the club education committee.

The seven-week Human Relations series, with Bob Montague of Dept. 124-0 as discussion leader, is to be held from 4:45 to 5:45 p.m. Tuesdays from March 15 through April 26 in the Bldg. 2 presentation room at Kearny Mesa.

Films to be shown are "Communications," "Person to Person Communications," "Vine Brothers," "The Real Security," "The Managerial Grid" and "Breaking the Delegation Barrier."

"Vine Brothers" is a film adaptation of a Harvard Business School case study in which a young department store executive, unknown to himself, is sewing seeds of dissatisfaction among his best men. In "The Managerial Grid," Prof. Robert R. Blake of the University of Texas discusses results of his research into ways managers manage.

The six-week Management and Administration series, with Jack Ables of Dept. 210-0 as discussion leader, will be presented Mondays from March 14 through April 18 in the Bldg. 2 presentation room at Kearny Mesa.

Films in this series will be "Eye of the Beholder," "Principles of Persuasion," "The Cage," "Production 5118," "Imagination at Work," "How Good is a Good Guy" and "Overcoming Resistance to Change."

"The Cage" tells the story of problems created for a rising executive who places too much emphasis on conformity and "Production 5118" is a film on human communication and perception.

The five-week Social Issues series will have George Lahey of Dept. 964-3 as discussion leader and will meet from 4:45 to 5:30 p.m. Thursdays from March 17 through April 14 also in the Bldg. 2 presentation room at Kearny Mesa.

Films to be included are "Community Repsonsibility," "Leaving It to the Experts," "One Man's Opinion," "The Public's Business" and "Pressure Groups."

Registration forms for the three series are to be forwarded by inter-office mail to Bob Williams, education committee chairman, at mail zone 586-00.

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Two Mgt. Club Series Slated

Two new management development courses for Convair Management Club members have been announced by the Management Club Education Committee.

A 10-week course in "Principles of Managing, Technical and Professional" will be held Tuesdays from March 15 through May 17. A six-week course in "Issues in Modern Management" will be held Mondays from March 14 through April 18.

Both courses are to be limited to 20 students and will be held from 4:45 to 6:45 p.m. in Room 8, Bldg. 17, at the Kearny Mesa plant.

Warren Ridge of Dept. 192-0 will be discussion leader for the 10-week course which will present basic principles and application of management functions. The text will be $6, no charge for attendance.

W. S. Williamson of Dept. 553-3 will be discussion leader for the six-week course, designed to assist in developing the ability to critically analyze complex issues. Cost of the text will be $3, no additional enrollment fee.

Forward enrollment requests to Bob Williams, education committee chairman, Kearny Mesa, mail zone 586-00.

Las Vegas Weekends Will Be Door Prizes

Expense-paid weekends in Las Vegas for two will go to some lucky ticket-holders at Convair Management Club's "Ladies Night" dinner meeting next Wednesday, March 16, at Hilton Inn, the former Oceanhouse on Pacific Hwy.

Besides the grand prize, members will have a chance at other valuable articles, from hair dryers to jet pack luggage.

Featured speaker will be Zeno Klinker, who will present the lighter side of heavier-than-air flight and an irreverent view of man's conquest of the air, illustrated by his movie "Higher'n a Kite."

Klinker, one of Hollywood's top joke writers, has been head writer for Edgar Bergen for over 25 years.

Social hour starts at 6 p.m. followed by roasted capon dinder at 7. Tickets are on sale at $3 per person.

Zero-Defects Type Workshop Convenes

Wes Magnuson, chief of special projects in reliability control and chairman of the Convair division's "Do Good Work" program, represented General Dynamics at a series of workshops for representatives of companies with zero defects-type programs Feb. 23 through 25 in Orlando, Fla.

Rrepresentatives of more than 50 industrial firms and military commands attended. The Hon. George E. Fouch, Deputy Assistant Secretary of Defense for equipment, maintenance and readiness, was a featured speaker.

Magnuson also visited Eastern Test Range for a conference with B. G. MacNabb, operations manager, and W. S. Bradford, manager of reliability and quality control, on "Do Good Work."

Emergency Service Draws Commendation

Fast response by the Convair fire department to an emergency call from Lindbergh Field recently probably prevented future complications for a woman suffering from hypoxia.

Lt. Fred Green of Convair, on duty at the time, received an urgent call from the tower that a light plane bearing the patient was landing for aid. He immediately rushed the department's unit to the North Flight Gate and administered oxygen.

The woman's husband, James Y. Smith of Berkeley, Calif., commended the Company for making such a service available and Lt. Green for his quick and efficient action.

Desert Back-Pack Trip Scheduled

CRA Adventurers will make a strenuous back-pack trip March 19-20 into the rugged Santa Rosa Mountains in Riverside County, north of Borrego.

CRA Commissioner Dick Bowen said those making the trip must have previous experience in desert back-packing. Each must carry at least a gallon of drinking water. Larry Lesh will be trip leader.

Adventurers will be accompanied by Roy Kepner, SD County geologist, and Roy Hampton, representative of the county Weeds and Rodent Control Dept.

For information call Bowen at 278-9846.

Master Points Won In Club Competition

Ed Lou of Electronics-SD and Francys Darr won North-South honors and Wayne Evans and Tom Ludwig, both of Convair, East-West honors in CRA Bridge Club's Feb. 11 monthly Master Point competition.

Winners in club-sponsored games on Feb. 18 were Jim Stephenson and Al Buggele, both of NASA, and on Feb. 25 were Mitzi and Bob Rustad. Rustad is Bridge Club commissioner.

CRA Calendar

(For information on CRA activities call CRA Headquarters, Kearny Mesa, ext. 1111. Deadline for copy for the next issue of GD/NEWS is noon, March 16. Call ext. 3322, KM, or 1071, LF.)

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ADVENTURERS — Weekend back-pack trip into Santa Rosa Mts. March 19-20. Call Dick Bowen, 278-9846, for information. Slide showing, "Contrasts in Scenic Grandeur," by Edith and Larry Tuttle March 16, 8 p.m., CRA auditorium.

BADMINTON — Play Mondays, 7-10 p.m., Federal Bldg., Balboa Park.

BASKETBALL — Shop league play Wednesday evenings and Saturday mornings, Muni Gym, Balboa Park.

BICYCLE CLUB — Tour of Rancho Santa Fe March 12. Meet in town park at 8:30 a.m.

BRIDGE — Play each Friday, 7:30 p.m., CRA Clubhouse. Special Master Point Night March 25.

CAMERA CLUB — Meeting March 20, 7:30 p.m., Photo Arts Bldg., Balboa Park.

CERAMICS — Instruction Tues., Wed., Thurs. evenings, 7:30-10:30 p.m.; Wed. morning, 10 a.m.-1 p.m., CRA Clubhouse.

COINEERS — Meeting March 16, 7:30 p.m., Convair cafeteria, Pacific Hwy.

CHESS — Play each Wednesday, 7:30 p.m., CRA Clubhouse.

DELTA DIVERS — Meeting tonight (March 9), 7:30 p.m., CRA Clubhouse.

FENCING — Workouts and instruction Fridays, 7:30-10:30 p.m., YWCA, 10th & C Sts.

FISHING CLUB — Meeting March 16 Gillespie Field. Potluck at 6:30 p.m., meeting at 7:30.

ICE SKATING — GD skate night Thursdays, 6:15-7:45 p.m., Mission Valley Ice Arena.

JUNIOR RIFLEERS — Meeting March 16, 7:30 p.m., CRA Clubhouse. Shoot March 19, 8 a.m., Gillespie Field Range.

JUNIOR SCIENCE — Meeting March 18, 7:30 p.m., CRA Clubhouse.

MOVIES — Reduced-price movies at State Theater, Euclid & El Cajon Blvd. Admission: adults, $1; children, 35c.

PISTOL CLUB — Club shoot 9:15 a.m., March 13, SD Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB—Meeting March 17, 7:30 p.m., Harbor Drive club headquarters.

RIDING CLUB — Meeting tonight, March 9, 7:30 p.m., CRA Clubhouse. Horse show March 20, CRA ring.

ROCKHOUNDS — Meeting tonight, March 9, 7:30 p.m., CRA Clubhouse.

ROLLER SKATING — Free skate night March 21 at Skateland, Front and G Sts. Tickets at CRA Clubhouse and employe services.

SCULPTURE — Workshop sessions Mondays, 7:30-10:30 p.m., CRA Clubhouse.

SPORTS CAR CLUB — Meeting tonight, March 9, 7:30 p.m., Convair executive dining room, Pacific Hwy.

SWIMMING — Swim night March 19, 7-9 p.m., Mission Beach Plunge. Tickets at employe services.

TENNIS—Annual spring tourney March 12-13, 19-20, 26-27.

TOASTMASTERS — Meetings each Wednesday, 4:15 p.m., CRA Clubhouse. Call D. R. Nash, ext. 2059, or Jim DeShazo, ext. 2056, both Kearny Mesa.

TOASTMISTRESSES — Serra Mesa Toastmistresses meet first and third Mondays, 7:30 p.m., CRA Clubhouse.

TROPICAL FISH — Meeting March 14, 7:30 p.m., CRA Clubhouse.

WOMEN'S GOLF — Monthly tourney March 12, noon, Singing Hills.

Tee Times Changed For Women's Golf

GD Women's Golf Club has changed tee-off time for this Saturday's (March 12) tourney to noon. Girls will play the Singing Hills short course.

Betty Liddell held low net over the 18-hole Mission Bay course Feb. 12 to win the special Heart Fund trophy donated by Ernie Paul at last month's match. Paul, former president of the Men's Golf Club at Stromberg-Carlson and instructor for the women's group, collected $26 for the Heart Fund.

Other winners Feb. 12, based on even-hole scores, were Vi Hirst, Flight A, and Lorene Waldron, Flight B, who both were awarded CRA trophies. Flight A runners-up who won merchandise certificates were Mabel Dunn, Arlene Talmadge, Willa Porter; Flight B, Thelma McColley, Florence Kell, Betty Liddell. Carol Stahl won a free golf lesson.

Cyclists Will Tour Rancho Santa Fe

Convair Bicycle Club has scheduled a tour of the Rancho Santa Fe area for this coming Saturday, March 12. Riders will meet at the park, near the fire station, in the center of town at 8:30 a.m.

Joe Olander (Dept. 963) has been appointed chairman pro tem of the new group. Cy Campbell is program chairman and Chan Jackson will serve as technical director.

Shot Awarded In CRA Event

Winners in CRA Gun Club's Feb. 27 registered ATA trapshoot took home shot enough to prime their guns for some time to come.

Fifty-pound bags of shot, or the equivalent in new shells, went to winners in the five classes of the 16-yd. event: Class A, Luther Veach, Cortez, Colo., 97; Class B, Reese Jones, San Diego, 95; Class C, Edwin Thompson, San Diego, 95; Class D, J. Terry James, El Cajon, 95; Class E, Dan Streib, San Diego, 90.

In handicap, Herb Langfeldt of National City shot a 96 for first and a 125-lb. bag of shot. Ed Thompson was second, 95, 100-lbs. of shot. George Skurla and Jones tied at 91. However, Jones forfeited to leave Skurla in third place with 75 lbs. of shot. Jones won 50 lbs.

Langfeldt also had high combined score of 192 to get another 100 lbs. of shot.

Jack Smalley of San Diego won the doubles with 91. Bill Smith of El Cajon won the shoot-off to break a three-way tie with Veach and Dr. O. V. del Rosario for second spot. They had all scored 87s. Doubles winners were given 25-lb. bags of shot.

'Package Weekends' In Vegas Offered

Four CRA package deals for a Las Vegas weekend in late April are available, giving a choice of price, bus or air transportation, and attractions. Anyone interested may call CRA headquarters, ext. 1111, KM, as soon as possible to indicate his preference. Final decision on which of the options will be offered depends on the amount of interest expressed.

Basic trip is $25 per person for round-trip by Greyhound bus and two nights, double occupancy, at the Stardust Hotel. By DC-7 the same weekend accommodations are $42.50 per person. Flying time is less than one hour compared to 6½ hours each way by bus.

Price of the weekend with entertainment included is $41.50 by bus and $59.50 by air. Added attractions are: admittance to the Lido "66 Revue" and dinner with choice of menu, $5 worth of chips, two drinks at the Desert Inn, show and two drinks at the Stardust Lounge, breakfast at the Palm Room.



FLYING SAUCERS? — Wonderful World of Disneyland lies ahead for General Dynamics families at special bargain-price party Saturday, March 26.

Disneyland Will Be 'All Yours' For Bargain Party March 26

A "personal experience with history" is in store for General Dynamics families and friends attending the big five-hour company party March 26 at Disneyland.

Bob Emerson, planning committee chairman for Convair Management Club, said one of the highlights of the evening for many will be a visit to see Disneyland's new "Great Moments with Mr. Lincoln" presentation.

"Mr. Lincoln" employs an audio-animatronics system developed at a cost of more than $1 million.

The program begins with the figure of the Civil War president seated in his White House office. The figure then rises and gives an address with complete coordination of Lincoln-like movements, speech and mannerisms.

"The address includes quotations as appropriate today as they were when Lincoln gave them 100 years ago," Emerson said. "Special techniques of three-dimensional animation, projection, staging and stereophonic sound heighten realism."

Tickets for the Disneyland party are now on sale at $3.50 each from Management Club boosters and at employe services outlets. All tickets must be purchased in advance. The single admission price entitles individuals to unlimited use of Disneyland attractions during the 8 p.m. to 1 a.m. party period.

Bus transportation, leaving Kearny Mesa plant at 6 p.m., will be $2.25 per person.

Ranscht Top Winner In Pistol Contests

Warren Ranscht shot himself to most of the top spots in recent CRA Pistol Club's matches, although it took some dead-eye marksmanship to shut out the competition.

Bull's-eyes decided results of the Jan. 23 master class in the .22-cal. Police Course when Ranscht outpointed J. S. Knutson with 14Xs to Knutson's 10. Both shot 295s. Dick Sutton won expert class with 277 and Curtis Greeley placed second with 274.

On the same day Ranscht shot 292 to win the Short National with Knutson's 287 putting him in runner-up spot. Jim Halfacre and Joe Williamson both shot 282 and had 5Xs for third and fourth places.

In Feb. 13 competition Ranscht again won the master with 296. Halfacre was second with 292. Angrim Carlson was first in expert, 286; E. B. Maiers, second, 276. A. E. Kampmann topped the sharpshooter class with 248, trailed by Byron Clapper, 240.

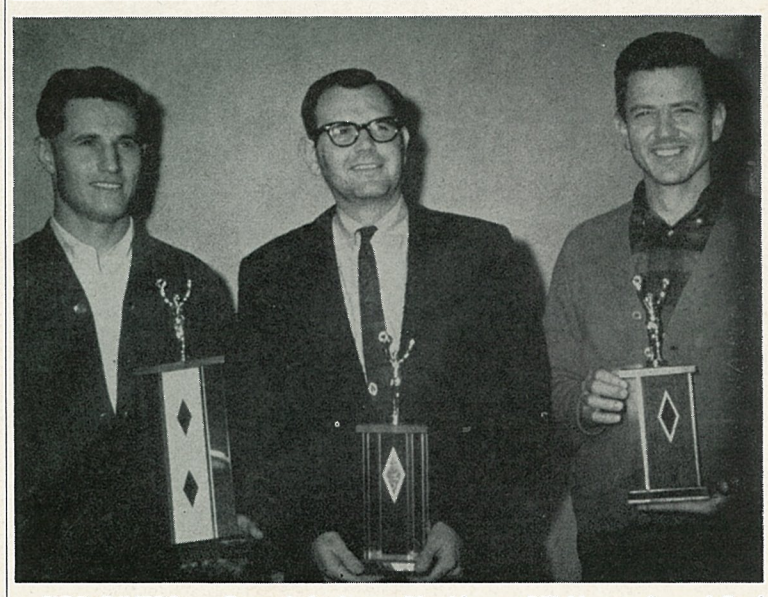
Knutson shot a 286 to take first in the center-fire Short National. Ranscht was second with 283; Maiers, third, 271; Halfacre, fourth, 266.

Bonair Flyers Plan Apple Valley Trip

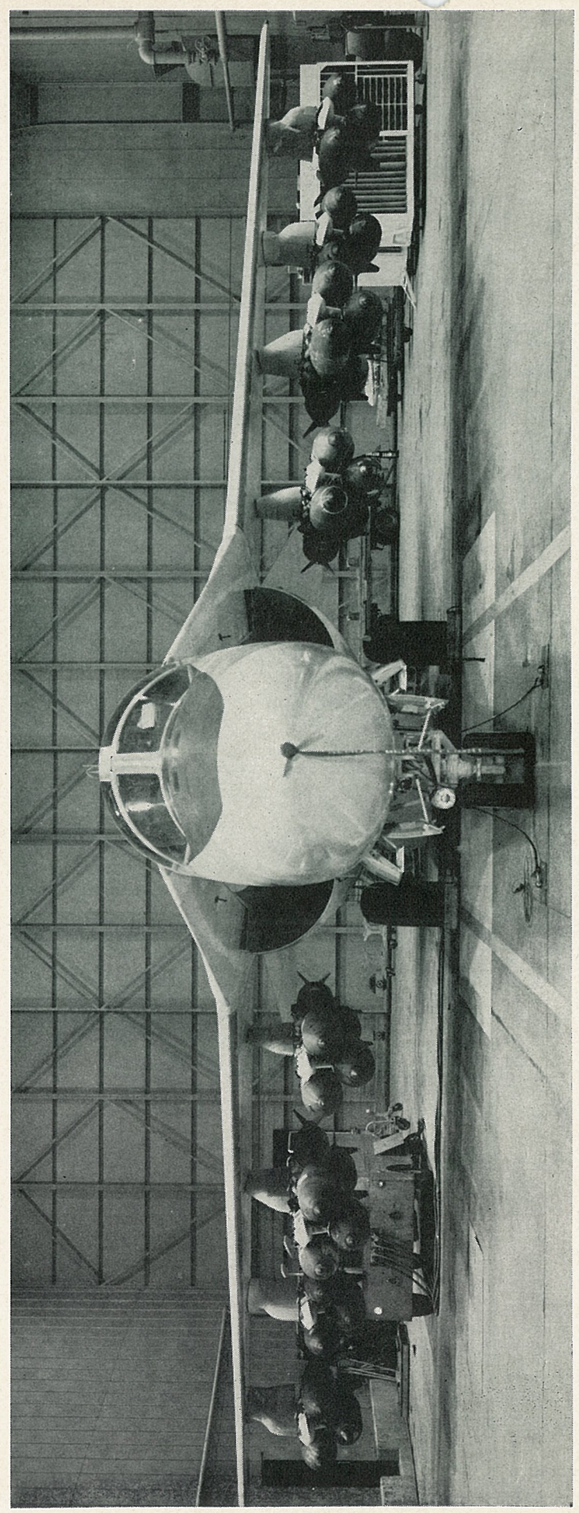
Bonair Flyers will wing to Apple Valley for a fly-in breakfast Sunday, March 20. Reservations must be made with Lambert "Red" Taylor, at ext. 2056, KM, by this Friday.

Six planes, carrying 21 passengers, rendezvoused at Palm Desert Feb. 27 for a brunch at Desert Inn, and 17 flew to Bahia de los Angeles in Baja California over last weekend. In fact, more people signed to take the trip than there were planes to transport them, said CRA Commissioner Glen Hemphill. And, membership in the club is constantly increasing with 12 new members joining last month.

At the CRA group's March 1 meeting, safety of general aviation flying was pointed up by M. V. Harris of Cessna Aircraft Co., who with his wife flew to San Diego that day from Wichita, Kan., to meet with the flying club. Harris showed figures to prove that flying fatalities are infinitesimal compared to the number of people killed each year in car accidents.



TOP DIVERS — From left, Larry Blackburn, Bill Howard, and Rod Johnson hold first, second, and third-place trophies as high-point CRA divers of year in 1965 competition.



BIG LOAD — F-111A, capable of carrying up to fifty 750-pound bombs, goes through ground vibration tests in preparation for weapons flight testing later this year. Work on bomber version for SAC has been authorized, and Great Britain has announced plans to purchase variable wing bombers.

ered, Britain Plans to Purchase

The FB-111's strike capability will be enhanced by addition of a

Short Range Attack Missile, which will give the bomber stand-off bombing capability.

Fort Worth division is associate contractor for SRAM, with Boeing and Martin vying for the regular production contract. The contract will probably be awarded in the near future.

Plans are to build FB-111s on a separate assembly line at Fort Worth division, which means that eventually both fighter and bomber versions of the variable-wing aircraft will be produced at the same time.

The British 111 will be somewhat different from all other versions, with features of both the F-111A and the FB-111, plus some British avionics equipment.

Despite the modifications planned for the FB-111, the bomber will maintain "over 85 per cent commonality" with both the Navy and Air Force versions.

Bomber Version of F-111 Ordered

Work on a bomber version of the 111—the FB-111—is in progress at Fort Worth division under Air Force contract to build two prototypes.

The RDT&E contract for the prototypes is expected to lead to a firm government order which will put 210 combat-ready FB-111s into Strategic Air Command service. First production deliveries will probably start in 1968.

At the same time, Great Britain has announced plans to purchase a bomber version of the 111—with the initial order totaling 10 airplanes.

"We're very pleased to learn of the announcement by the British government," President Frank W. Davis said. "We expect to shortly receive directions from the U. S. government as to what steps will be taken to fulfill the United Kingdom requirements."

TAC F-111A No. 9, now in Category II testing by Air Force at Edwards AFB, will be converted into one of the bomber prototypes; F-111A No. 18 will roll off the assembly line in bomber configuration. Both will be flight-tested from Fort Worth division.

Major modifications to the bomber version will include a stronger landing gear and additional avionics gear which will enable the FB-111 to carry out missions peculiar to SAC. Addition of Navy wing tips and larger external fuel tanks will also increase the FB-111's range.

"The FB-111 will have greater range and penetration capacity than either the B-58 or the C through F series B-52s, for most strategic missions," said F. E. Armstrong, FB-111 chief project engineer. "It will also have comparable bomb-carrying capability."

Armstrong said SAC Commander Gen. John D. Ryan was "very enthusiastic" about the FB-111.

Liquid Carbonic Will Construct New Air Separation Facility

broken in March.

Liquid gases are used extensively in the metalworking, electronics and food processing industries, and new applications are being found almost daily, particularly in the fields of food freezing and preservation, Lewis said. "We anticipate steady growth in the use of the division's Cryo-transfer flash-freeze food preservation system, which employs liquid nitrogen."

Liquid Carbonic, founded in 1888, is the world's largest producer of carbon dioxide and a major manufacturer of other industrial and medical gases.

Reproduced on this page is another in a series of advertisements, placed by General Dynamics recently in a number of prominent national publications.

Research Submersibles: A report from General Dynamics

New breed of vessel:

A hundred and thirty feet down in the Aegean Sea, a Byzantine galley had hidden its secrets for almost fifteen centuries. Then in 1964, University of Pennsylvania Museum archeologists mounted paired cameras on a new research submarine, Asherah, and learned more from the three-dimensional photographs obtained in one "flight" over the wreck than had been possible from weeks of scuba diving.

This was the first of dozens of undersea jobs already done by Asherah. The Asherah is the 339th—and at 17 feet long, the smallest—submarine built by General Dynamics. For comparison, the Holland, the very first submarine we delivered to the Navy in 1900, was 54 feet long. Over the years, we have built the prototypes of most classes of United States Navy submarines, including its nuclear-powered undersea ships.

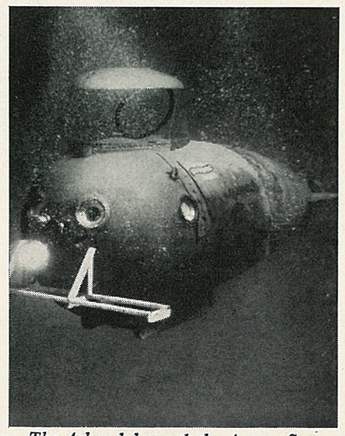
But the true manned research submarines are really a new breed of boat. Less than a score now exist.

Depth and mobility:

Unlike bathyscaphes, designed to drop to great depths but remain relatively immobile for passive observation, the new research submarines must have depth capability, the ability to perform useful work, and the mobility to survey extended areas at a reasonable speed.

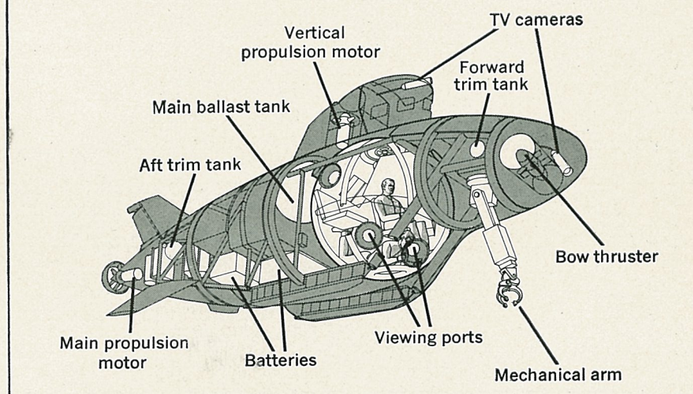
Asherah is one of the first true research submarines. It can dive to 600 feet (World War II subs rarely dived much below 300 feet), stay submerged for ten hours, cruise at three to four knots, move in all directions. An improved sister ship, Star II, is made of the same HY-80 steel that goes into nuclear submarines; it has depth capability to 1,200 feet.

A larger boat we call Star III (see cutaway drawing below) is built of even tougher HY-100 steel. It has a cruising depth of 2,000 feet, and is equipped with an external mechanical arm that has interchangeable "hands"—a clamshell grip, a wire cutter, and a "three-finger" which can pick up a pencil or a 200-pound weight, or manipulate a valve.



The Asherah beneath the Aegean Sea.

CUTAWAY OF STAR III



The Aluminaut, the largest research sub so far, was built by General Dynamics for Reynolds International to prove, among other things, the feasibility of aluminum as a hull metal. The 51-foot Aluminaut is designed to operate at depths up to 15,000 feet, under pressures up to more than 7,000 pounds per square inch. Aluminaut, in early sea trials, has cruised as deep as 6,250 feet, and remained submerged for over 30 continuous hours. A World War II military submarine rarely remained submerged for more than 24 hours.

Problems and needs:

These early research subs still have many limitations of speed, range and submerged endurance. They require back-up by a mother ship and have to be carried or towed to a job location.

This last "limitation" can sometimes be an advantage. Asherah and Star II, for example, are small enough to be rushed by air for a rescue operation.

But subs with many special characteristics will be needed for exploring—and for exploiting—the sea.

Some vessels will have to withstand pressures up to 10,000 pounds per square inch, to allow them to penetrate into mid-ocean abysses four miles deep. Work subs for, say, mining will have to be stable enough in a buoyant environment not to be whipped about in reaction to the force of their own tools.

We have already done a study for the Bureau of Fisheries showing feasibility of a submarine to track oceanic fish. It would be 160 feet long, carry 31 persons at speeds up to 20 knots, and could cruise submerged for up to 90 days.

Right now, we don't think there will ever be one single all-purpose type of research-work submarine. Just as land vehicles range from motor scooters to 20-ton earthmovers, so will most manned submersibles be designed and built for special purposes.

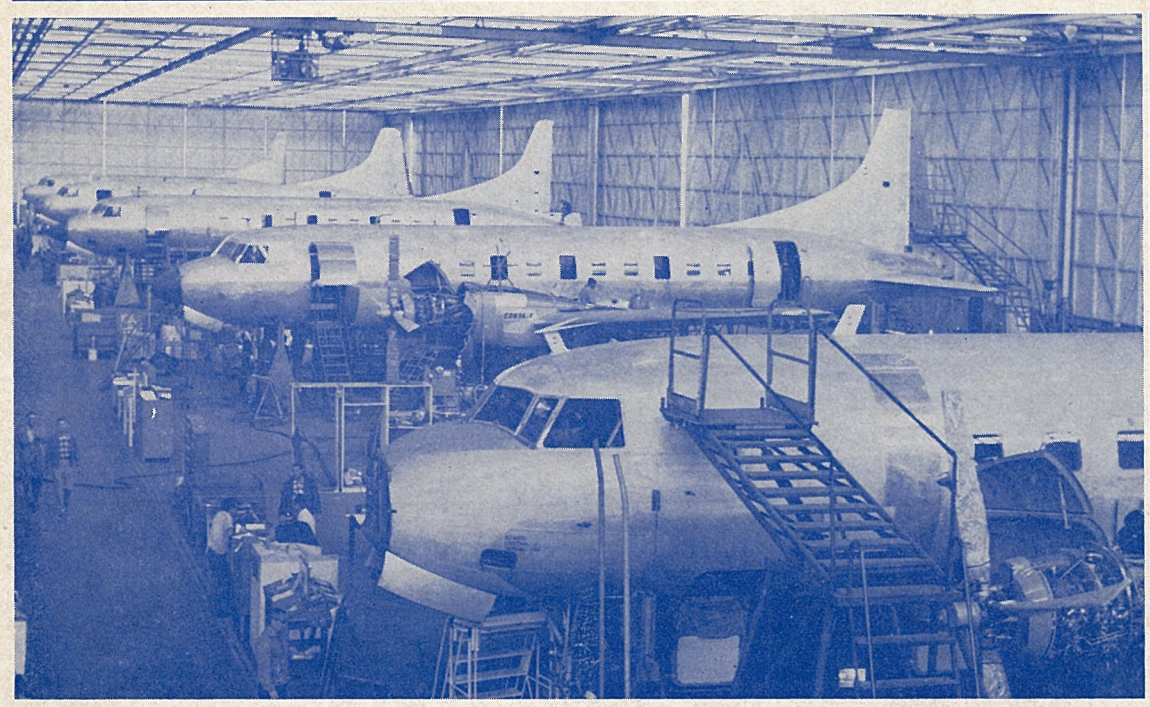
General Dynamics is a company of scientists, engineers and skilled workers whose interests cover every major field of technology, and who produce: aircraft; marine, space and missile systems; tactical support equipment; nuclear, electronic and communication systems; machinery; building materials; coal and gases.

GENERAL DYNAMICS

MAIL EDITION

GENERAL DYNAMICS NEWS

Vol. 19, No. 6 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, March 23, 1966



FULL LINE — Five Convair-Liners fill commercial line at Convair Service Center for modification to Convair 600/640 version for Central, Caribair, Hawaiian airlines. A Central Convair 600 was delivered to Fort Worth, Texas, March 18 and a Caribair Convair 640 to Puerto Rico March 17, on schedule. Planes from Caribair and Hawaiian have been moved in to take their places.

'Silver Cloud' Service Begun by Trans-Texas

Convair 600/640 aircraft, Convair-Liners modified to turbojet version with installation of Rolls-Royce engines, now are in passenger service on four airlines with inauguration of Trans-Texas Airways' Convair 600 service the first of the month.

Trans-Texas "Silver Cloud 600" lifted from the Houston airport at 6:14 a.m. on March 1 for its first scheduled flight to Beaumont and Dallas. The Convair 600 is in the air over 11 hours a day, making two complete circuits out of Houston to other Texas points.

L. J. Bordelon, Convair manager of customer requirements, who flew the initial flight, said that the first Trans-Texas Convair 600 is demonstrating the highest type of reliability covering the short-hop route, making 15 stops each day during its scheduled flight time from early morning until 10:15 each night.

Trans-Texas has two other Convair 240s in modification at its Houston facility with a second Convair 600 nearing completion.



"SILVER" SERVICE — Trans-Texas Airways' crew and Convair representatives at inauguration of Convair 600 scheduled passenger service March 1 are, from left, Capt. T. K. Lee, Trans-Texas vice president-flight; L. J. Bordelon, Convair manager of customer requirements; Flight Officer Baxter Oakes; Sally Blackstock, hostess; John Crenshaw, Convair field service rep for Trans-Texas and Central Airlines; Frank Laffoon, former Convair field service rep, now AiResearch representative at Trans-Texas.

The airline has purchased 25 modification kits from Convair for conversion of its entire fleet of Convair 240s to the turboprop version.

Central Airlines, Inc., was first airline to inaugurate Convair 600 passenger service. It put its first Convair 600 into operation last November between Fort Worth, Texas, and St. Louis, Mo., and now has three Convair 600s making runs from Fort Worth to Kansas City and from Fort Worth to St. Louis with intermediate stops. Two more Central planes will move out of the Convair Service Center this month. The Service Center is modifying ten Convair-Liners for Central, as well as nine for Caribbean Atlantic Airlines, Inc., and seven for Hawaiian Airlines.

Caribair began Convair 640 service out of San Juan, Puerto Rico, on Dec. 22 of last year and is now using two 640s on its shuttle service between San Juan and St. Thomas, a run of 25 minutes, terminal to terminal.

Hawaiian Airlines started Convair 640 inter-island service on Dec. 23 and placed its second 640 in operation in early February. Over 450 hours have been accumulated in service from Honolulu to Maui, Hilo, Kamuela, and Kauai. The aircraft have been used up to seven hours a day in heavy weekend traffic.

Work on the Convair 640 for Martin's Air Charter of The Netherlands began the first of February at Aviolanda, Woensdrecht, Holland. This aircraft, scheduled for completion in early April, is the first Convair-Liner

(Continued on Page 2)

Convair Earns Center's Praise In FLOX Study

Convair division has been commended for its "capable management" of a series of study and test programs related to fluorine technology and use of FLOX (fluorine and oxygen) as a propellant. Tests were conducted during the past year under a $600,000 contract from NASA's Lewis Research Center in Cleveland.

D. K. Richmond, head of the guidance systems procurement section at Lewis, in a letter to Convair said "significant advances in FLOX technology have been achieved" and commended the division for "its capable management of these efforts and its demonstrated capability to execute research and development programs."

Sycamore Canyon facilities were used in the work which included compatability tests of the Atlas boil-off valve and tests for evaluation and control of oxidizer fluorine hazards in the atmosphere.

Fluorine is a hypergolic oxidizer that ignites spontaneously when coming in contact with many materials. It is desirable as a launch vehicle oxidizer because it permits more oxidizer weight to be loaded into a given-size tank to increase burn time and total impulse, both of which would greatly increase the Atlas payload.

William A. Roberts of Convair Dept. 952 was program manager for the boil-off valve tests, which showed Teflon seals and the Atlas

(Continued on Page 2)

Funds Approved For Continued Terrier and Tartar Production

Pomona division has been awarded $34,554,000 by the Navy for continued production of Terrier and Tartar guided missiles.

Terrier, which became operational in 1955, arms 31 U. S. Navy ships, primarily guided missile cruisers and frigates. Tartar, operational since 1960, arms 28 U. S. warships, mostly destroyers. The two missiles are also on some French, Italian, Australian, Japanese and Dutch vessels.

The award was announced March 15 by the office of Congressman Glen Lipscomb.

Both Terrier and Tartar are supersonic missiles which provide anti-aircraft protection to the Fleet.

Last year the Navy announced that Terrier and Tartar missiles would remain in production during development of a new Standard Missile. The new missile which eventually will replace Terrier and Tartar will utilize current shipboard control and launching systems with minor modifications.

$40 Million Order Placed

Award of a $40 million-plus subcontract to Convair division to build the empennage for the USAF C5A was announced late last week by Lockheed-Georgia Co., a division of Lockheed Aircraft Corp., following industry-wide bidding.

"Convair is extremely gratified to have won the competition," Jack L. Bowers, division general manager, commented.

"The program, along with our continued production of Atlas SLVs, Centaur spacecraft and other major space and aircraft projects, assures Convair of a strong employment base and a substantial level of business activity for the next few years."

Lockheed is designing and will develop and manufacture the fan-jet C5A, world's largest airplane, at its Marietta, Ga. plant. The award to Convair includes the vertical and horizontal stabilizers, rudder and elevator. The stabilizer, standing 63 feet above the ground, will span 68½ feet.

Lockheed is developing the 700,000 lb. airlifter under direction of the Air Force Systems Command for 1969 delivery to the Military Airlift Command.

"The C5A task will enable us to continue our fine relationship with the Lockheed Aircraft Corp., one that began with our work on the C-141 empennage, and will provide Convair with long term involvement in a very important national program," Bowers added.

Development and production activity described in the Lockheed news release is for an initial contract in excess of $40 million. The total C5A empennage program, as currently planned, is expected to amount to more than $60 million.

WTR Vice Commander Pays Convair Visit

Col. Carl A. Ousley, vice commander of the Western Test Range, visited Convair last week for a briefing on division organization, launch vehicle programs and research and development programs.

He also conferred with Col. James R. Ourand, DCAS plant representative, and with Jack L. Bowers, division general manager, and toured the life sciences, space science and data retrieval areas.

F-111As Will Fly For AF Show

The Air Force F-111A will demonstrate its sweep-wing capability during an air show at Carswell AFB March 24 through 26.

Two F-111As will participate in the show, held in conjunction with the 20th anniversary convention of the Air Force Association in Fort Worth-Dallas March 22-25.

One F-111A will be on static display all three days; the other will put on a five-minute aerial performance each day.

The F-111A flights will include: a high subsonic-speed pass over the field at an altitude of 250 feet; a climbing turn over the base, during which the wings will be moved through a full-sweep cycle; and a third pass in which the wings will be swept rearward.

Test aims of the F-111A will be carried out during the flight.

The F-102, F-106 and B-58 Hustler are among other General Dynamics airplanes which will participate.

Arctic Field Testing Completed by Redeye

Redeye, a shoulder-fired anti-aircraft weapon system, has successfully completed Arctic field tests at Fort Greeley, Alaska, the Army said last week.

The test program was concluded recently with seven successful firings highlighting the final day.

Several small target drones were completely demolished as warheads were used in part of the tests, the Army said. Other missiles carried telemetry packages in place of the high-explosive warheads.

Tests were conducted by the Army's Test and Evaluation Command with the support of contractor and Redeye Project Office personnel. The Redeye program is managed by the U. S. Army Missile Command, Redstone Arsenal, Ala., under Col. A. W. Reed, Project Manager. General Dynamics, Pomona division, is prime contractor.

Called the world's smallest guided missile, Redeye gets its name from the infrared heat seeking device it employs to "home" on the heat of an aircraft's engines.

Prior to actual firings, Redeye equipment was field handled and exposed to severe weather conditions. Soldiers carried the equipment on their backs, tramped over rough terrain on skis and snow shoes and even left the equipment lying in the snow for days at a time.

Results show that soldiers and Redeye equipment can operate in an Arctic environment.

Now in production, Redeye development has been funded jointly by the Army and the Marine Corps. Both services will share in the output of missiles.

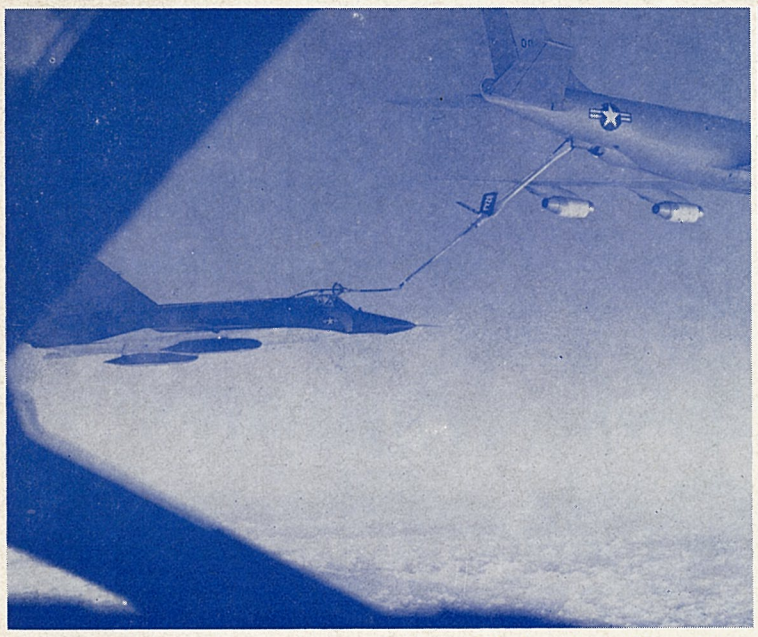
In operation, initial target detection and tracking is done visually by the gunner. When the aircraft is within range of the missile and an infrared seeker has "locked" on the target, a simple squeeze of the trigger fires the missile.

Engineering/service tests are continuing at White Sands Missile Range, N. M., and at Fort Bliss, Texas, the Army said.

Babcock Is Panelist On Electroplating

E. H. Babcock, supervisor of Pomona division's processing and material laboratories (Dept. 27), was one of four experts from industry serving on a panel March 8 during an intensified one-week course in electroplating sponsored by the American Society for Metals in Los Angeles.

Babcock, who has spent 35 years in the field of chemistry and metal processing, is a member of the board of directors of the American Electroplating Society.



FILL 'ER UP — Convair-built F-102, at left, is refueled in mid-air from KC-135 tanker during recent flight tests of Convair-developed refueling probe.

In-Flight Refuel Probe Developed For F-102s

Convair division of General Dynamics has completed development of a refueling probe which will allow Air Force F-102 jet interceptors to be refueled in flight.

Convair was responsible for design, development, and installation proofing of the refueling probe under an engineering services support contract (AF41(608)-37105, task No. 1) from San Antonio Air Materiel Area.

Specifications called for a probe which can be used in hookups with the standard AF refuel drogue system on airborne tankers. Also, it was necessary to design the F-102 refueling system to allow fuel to be drawn from a tank for the plane's power plant at the same time that tank is being refueled.

In addition to design and development Convair conducted static ground tests to prove that the probe would withstand drogue loads during hookups in accordance with Air Force requirements.

Flight tests have demonstrated satisfactory performance of the equipment in the air.

Convair engineering and experimental department conducted the total task which was coordinated by C. S. Brandt, F-102 program manager, and B. F. Ferguson, F-102 project engineer.

Director of British Firm Visits Convair

Dr. G. H. Hough of Hatfield, England, technical director and a member of the board of directors of Hawker Siddeley Dynamics Ltd., visited Convair's Kearny Mesa plant recently.

He met with Jack L. Bowers, Convair general manager; G. L. Hansen, vice president-launch vehicle programs, and E. R. Peterson, vice president-research and engineering. He was a guest in San Diego of J. R. Anderson, Hawker Siddeley Dynamics resident representative at Convair.

Hawker Siddeley Dynamics builds the Blue Streak launch vehicle and has a limited technical assistance contract with Convair.

Magnuson Speaker On 'Do Good Work'

W. E. Magnuson, chairman of Convair division's "Do Good Work" program, was guest speaker from industry last week at a U. S. Army-sponsored Zero Defects Workshop in Honolulu, Hawaii.

The workshop provided training for representatives from Army commands under the jurisdiction of the Commander in Chief, U. S. Army, Pacific (CINCUSAPAC).

General Dynamics News

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Inquiries may be directed to GD/NEWS, Box 1950, San Diego, 92112.

Space Vehicles Play Key Roles

Convair division-built space vehicles are playing key roles this month in important space ventures.

Countless eyes watched TV screens last week as Atlas SLV No. 5302 took off from Kennedy Space Center's Complex 14 to boost the modified Agena D target vehicle into space for docking maneuvers involving Astronauts Neil Armstrong and David Scott.

Agena was accurately positioned, and docking accomplished, though maneuvers were terminated prematurely because of turbulence.

Other impending missions include:

Convair-built twin satellites 4 and 5 in the OVI series are scheduled to ride into space on the nose of Atlas 72-D from Vandenberg AFB's ABRES B Pad 3 this week. The satellites, both containing a variety of scientific experiments, are to be placed into different circular orbits. The Atlas also is to carry a side-mounted scientific passenger pod with instrumentation for five other experiments.

Atlas SLV-3 No. 5001 and its Agena second stage later this week will send a 3,900-pound Orbiting Astronomical Observatory spacecraft from Kennedy Space Center's Complex 12 into orbit for astronomical experiments. The OAO will give earthbound astronomers a "new look" at the universe from a vantage point above the distortions caused by the atmosphere.

Atlas-Centaur Eight (Atlas 184-D and Centaur 6-D) next week will send a mass model representative of a Surveyor spacecraft from Kennedy Space Center's Complex 36B toward a "simulated moon" point 240,000 miles in space. AC-8 is to prove Centaur's ability to restart its engines after a 25-minute "parking orbit" coast in space. AC-8 also will be the first to fly the new RL10A-3-3 liquid hydrogen engines and an improved guidance and flight control system.

Convair vehicles also were being used in other ETR launches during the month.

Already "in the wings" at Cape Kennedy are Atlas SLV-3 No. 5801 which will launch the United States' first Lunar Orbiter spacecraft and the Atlas-Centaur Ten vehicles (Atlas 290-D and Centaur 1-D) which are to send the first full-scale Surveyor SC-1 spacecraft for a landing on the moon.

Convair Earns Center's Praise In FLOX Study

(Continued from Page 1)

boil-off valve to be compatible with FLOX.

John R. Thayer of Dept. 584 was program manager for the hazards testing which involved both electronic and photographic recording of fluorine diffusion from both hot and cold spills.

Both Roberts and Thayer were assigned to R. W. Keehn's SLV program office for the test programs.

For some of the "hot" spills, 3,000 pounds of FLOX (30 per cent fluorine and 70 per cent oxygen) were loaded in a tank ringed by charcoal or kerosene fuel in a pit. The bottom of the tank was cut away with a shaped charge and the fuel in the pit ignited simultaneously, with the resulting FLOX fireball being dispersed into the air.

In addition to use of commercially available measuring instrumentation, two new devices for accurate measurement of minute amounts of fluorine in the atmosphere were designed by Dr. Samuel Kaye of Dept. 596-0 and Don Rau of Dept. 572 and built by the Convair division. They were an electrochemical fluorine indicator-recorder and a chemical fluorine and fluoride dosimeter.

Less than one part in one million parts of air was detected at distances up to two miles from the test site.

The test program, as one of its major objectives, established feasibility of using the Sycamore Test Site for fluorine oxidizer testing and determined maximum operating conditions for flight-weight tanking and engine firing duration for Atlas with FLOX and for Centaur and Kick-stage with hydrogen and fluorine.

Smoke was used in some of the tests to make cloud trajectory more visible for recording purposes. Meteorology Research, Inc., of Altadena, a subcontractor, used a light aircraft for atmospheric sounding and cloud tracking during each test.

All the test fixtures used survived the 11 "hot spill" tests with virtually no damage.

Richmond, in his letter, said efective cost control procedures were exercised throughout the programs and strong and efficient efforts were made to keep manpower, material and propellant costs to an effective minimum. The test programs were completed on schedule and within budget.

Howard Douglass, Lewis Research Center FLOX project manager, directed the program for NASA. Harold Schmidt was technical contract coordinator at Lewis. A. E. Buggele of the San Diego NASA office was resident engineer.

Frank Di Piazza supervised test operations at Sycamore for Dept. 976, William Gidding was test conductor, Merle Aleshire handled data acquisition and Dan Gray was responsible for engineering in connection with the boil-off valve. William McClure of Dept. 124-0 was motion picture photographer.

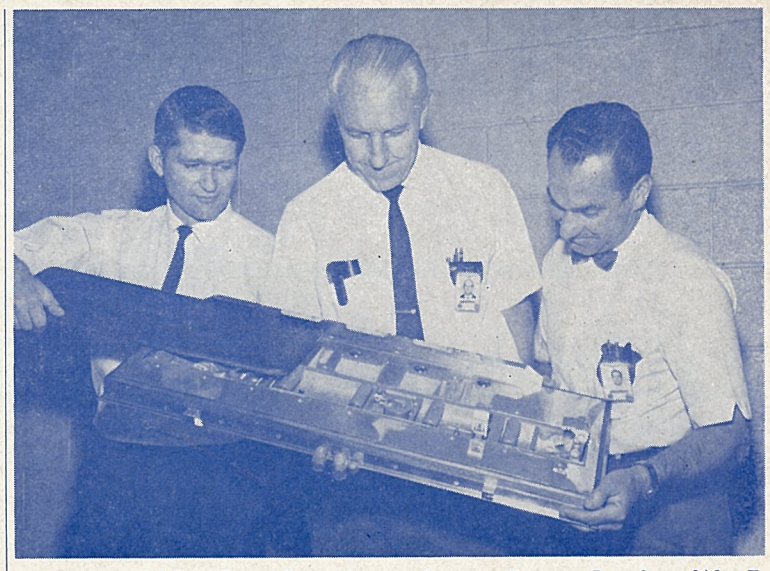
'Silver Cloud' Air Service Under Way

(Continued from Page 1)

in Europe to be converted to Rolls-Royce power.

"Although the limited number of Convair 600/640 aircraft now in fleet integration stages does not permit development of significant operational statistics at this time, the engine reliability, en route performance, and passenger acceptance already demonstrated clearly point toward achievement of new standards of service," Bordelon said.

When telephoning, never mind the weather. Get to the point. Telephone time costs money.



EASY LOADING — Convair engineers Bruno Bracka, W. E. Service, and Robert McGregor, display "suitcase" model of DC-9 cargo floor developed for Douglas Aircraft Co. Bracka shows how cargo pallet slides over rollers as it is positioned in plane's fuselage.

Cargo Floor Design Transforms Transport Into 'Station Wagon'

Convair engineers this month delivered a "suitcase" model of a new cargo floor designed for Douglas Aircraft's DC-9 version on order by Trans-Texas Airways.

Convair is responsible for structural and mechanical design of the unique convertible cargo-passenger floor concept under a Douglas engineering contract received last fall. Design of the fuselage cargo floor, floor support structure and mechanisms will be completed by mid-April.

"You might say that this cargo floor transforms the jet transport into a station wagon," John Burgeson, Convair group engineer in charge of structural design, said. "The aircraft can be operated in the typical all-passenger configuration, or partial passenger and partial palletized cargo, or all palletized cargo with quick change-over in less than an hour at any airport."

A new-type passenger seat, which can be folded and moved forward and aft to provide space for cargo, will be used. When the plane is operated as an all-passenger craft, the cargo floor's mechanisms are inverted to provide a smooth passenger floor. When operated as a combination passenger-cargo, or all cargo configuration, the roller conveyor sections are turned over and locked into position. The floor is built in sections to accommodate cargo pallets, 88x108-inches in size. Any number, from one to six, can be turned over for cargo with partitions separating the cargo section from passenger areas. The wooden pallets bearing the cargo are loaded by fork lift through a side cargo door, then pushed over the rollers into position.

Structural design engineers under Burgeson and mechanical design engineers reporting to Jerry Hawkins, group engineer, have developed the versatile "flip-flop" floor to Douglas' specifications, incorporating Douglas rollers and the patented Douglas lock as securing device between pallets. Convair engineers designed the end and side locking mechanisms.

The "breadboard" model is realistic in every aspect with rollers and latches operating exactly as on the full-scale cargo floor. Douglas will use the model in demonstrations to customer airlines.

In addition to this cargo floor, Convair engineers also are working on floors for other Douglas planes. They are designing cargo floors for the DC-8 elongated version ordered by Panegra Airlines; Overseas National Airlines' DC-9 which will use tracks for installation of seats or cargo rollers; Continental Airlines' DC-9, which calls for seats on pallets to be installed over the cargo area when used in the passenger configuration.

10th Air Force Pilot Checks Out In F-111 on Flight at Edwards

Lt. Col. Thomas J. Cribbs, F-111 project officer of the Flight Safety Division, Directorate of Aerospace Safety office, Norton AFB, recently became the tenth Air Force pilot to fly the F-111A.

Colonel Cribbs completed a 2-hour, 25-minute flight, primarily to evaluate the plane's terrain-following radar system, from Edwards AFB.

The flight was over the desert and mountainous terrain that surrounds the California test center.

Colonel Cribbs' flight was considered significant in that it marked the first time that a flight-safety officer of Pentagon level has been checked out in a high-performance aircraft at such an early point in the flight-test program.



FIRST FLIGHT — Lt. Col. Thomas J. Cribbs, F-111 project officer of Directorate of Aerospace Safety office at Norton AFB, checks out in F-111A. At left is co-polit Fred Voorhies, Fort Worth division test pilot.

Board Authorizes Redemption Of GD's Preference Stock

The Board of Directors of General Dynamics Corporation has authorized the redemption on April 15, 1966, of all the shares of convertible preference stock of the Corporation outstanding at that date.

The 787,214 shares called for redemption are the balance of the shares issued in connection with the merger of Material Service Corporation into the company in 1959. The preference shares are convertible into General Dynamics common stock at the rate of 1.057909 shares of common stock for each share of preference stock. The holders of the preference stock can convert into common stock through March 31, 1966.

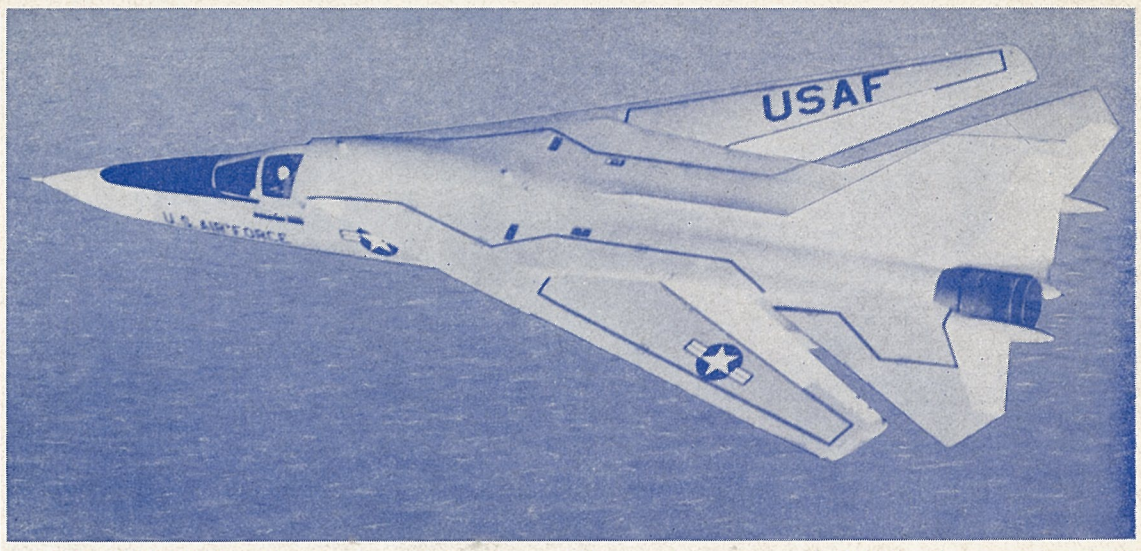
Redemption of all of the outstanding preference stock at $62.75 per share, including 84.6 cents of accrued dividends at the redemption date, will require approximately $49,400,000.

Funds for the redemption will be provided by currently available surplus funds and additional bank borrowings. On Jan. 31 of this year the Corporation borrowed $25,000,000 from the Prudential Insurance Company. This loan carried a 5 per cent interest rate and is repayable in 13 annual installments beginning in 1968, which payments can be trebled at the option of the company without premium. No new long-term borrowing will be required. The Prudential currently holds the major portion of the Corporation's long-term debt.

The preference stock terms provide for a mandatory sinking fund under which the Corporation would have been required to redeem preference shares remaining outstanding at $58.125 per share plus accrued dividends at the rate of $6 million a year in each of the years 1967 through 1973 and the balance in 1974.



IT'S COLD OUT THERE — Crew from Electronics division operation at San Diego, on board first Apollo Instrumentation Ship, Vanguard, during sea trials off Atlantic coast, shiver in mid-February chill. Bundled against cold are from left, lower row, Don Kinnaird, Don Brown of Convair, Manny Martinez, Dave Clark. From left, standing, are D. N. Hale, Roy Thompson, Frank Nelson, John Heilman, Jim Obbard, Roland Nuetzman, Henry Copeland, who heads Electronics-SD operations for AIS program at Quincy, Mass.



FAST AND LOW — Touched-up photo shows fully-swept posture of F-111 wings as versatile fighter streaked at 2,000 feet over a Gulf-of-Mexico corridor at peak speed of 14 miles a minute! F-111 is only plane designed for sustained, low-level flights.

F-111 Streaks Over Gulf Corridor During Low-Level Supersonic Runs

Flying with wings fully swept at 2,000 feet, F-111 No. 1 streaked over the Gulf of Mexico at 14 miles a minute recently to launch an extensive series of low-level, supersonic runs for the variable-wing fighter fleet.

By early March, No. 1 had completed five such on-the-deck dashes, reaching speeds of over Mach 1.1 (about 830 mph) on each run.

Four more such supersonic runs were needed to verify the F-111's freedom from excessive flutter on high-speed, low-level sorties.

"After information from the tests is carefully analyzed, we'll clear other F-111s in the program —both GD's and Air Force's—for low-level, supersonic runs to check out various systems on this type mission," said Bob Moller, manager of flight test.

Moller hailed the flights as "perhaps the most significant milestone to date in the F-111 program."

"The F-111 is the first airplane designed specifically for sustained on-the-deck supersonic performance," Moller noted. "Before we're through, we'll fully demonstrate the F-111's unique capability of penetrating enemy defenses by flying faster than sound on-the-deck for relatively long distances."

F-111 No. 1 reached speeds of nearly 830 miles an hour during each of the gulf flights. "At this speed," Moller said, "the airplane would have flown from Fort Worth to Dallas in about two minutes."

Data from the 2,000-foot altitude flights was extrapolated to forecast the aircraft's performance at near-sea level. "Actually," Moller said, "there should be little if any difference in performance at lower levels. Eventually, however, we'll be making flights as low as 200 feet over the gulf."

R. L. Johnson and W. H. Harse were pilots and O. D. Lively co-pilot on the low-level flights over the gulf corridor. The test corridor is about 100 nautical miles long and parallel to the Gulf Coast between Sabine and Palacios, Texas. It is 30 to 40 miles off-shore.

Future series of supersonic, low-level runs by F-111s will be made over both the Gulf Coast corridor and air strips off the Pacific Coast and at Eglin AFB, Florida.

Low-level tests have already been scheduled from Edwards AFB, California, in a corridor over isolated areas of Southern Nevada and California.

Isolated Areas of California and Nevada Warned to Expect F-111 Sonic Booming

Low-level supersonic flights of the F-111 tactical fighter may cause sonic boom disturbance in isolated areas of Southern Nevada and California, Air Force officials at Edwards AFB announced.

Test flights originating from Edwards, home of the F-111 Test Force, will be subsonic from the base to the Paradise Mountains of Nevada, where the aircraft will turn for its supersonic dash across parts of that state and over California's Eureka and Tanamint Valleys on the return trip.

Although the flight path was carefully worked out by Air Force and Federal Aviation Agency to avoid all populated areas, adverse atmospheric conditions at certain times could magnify the booms so they would be felt in sparsely populated regions. Nearest the route is five-mile-distant Coaldale, Nevada, with a population of little more than 15.

The two major highways which lie under the F-111's path, U. S. Route 6 in Nevada and California Route 190, will be posted to warn motorists of possible booms five miles before the affected areas.

Device Sought By Which Astronaut Can Measure Gravity on Moon

Needed: a measuring device—durable yet ultra-sophisticated—to measure gravity on the moon.

Dr. Gary Henderson of Fort Worth division's applied research laboratory is working on such an apparatus, which an astronaut can carry on his mission to the moon.

"The measuring meter must be tough enough to withstand the trip," Dr. Henderson said. "Yet it must be appreciably more sophisticated than conventional measuring devices used on earth. In addition, it must be ultra-reliable—what we call 'Astronaut-proof.' He won't be able to make adjustments in space."

A pendulum—much like the one in a grandfather's clock but more intricate—is one method used to measure gravity on earth. Dropping a falling body such as a small sphere in a vacuum is still another. But both methods involve too-delicate equipment.

"We considered using a 'thermal-motion method,'" Dr. Henderson said. "This involves measuring the changing velocity of neutrons to determine the pull of gravity. But it's too difficult to measure precisely such factors as initial temperature and velocity of neutrons."

An inverted pendulum—more involved than the type regularly used on earth—is under consideration, as is a vibrating-string method.

"The latter involves measuring gravity by the vibration of a fine string inside a vacuum," Dr. Henderson said. "It has good possibilities."

Whatever device is used, it will hopefully be versatile enough to make both absolute measurements (at a single point) and relative measurements (at scattered points) on the moon.

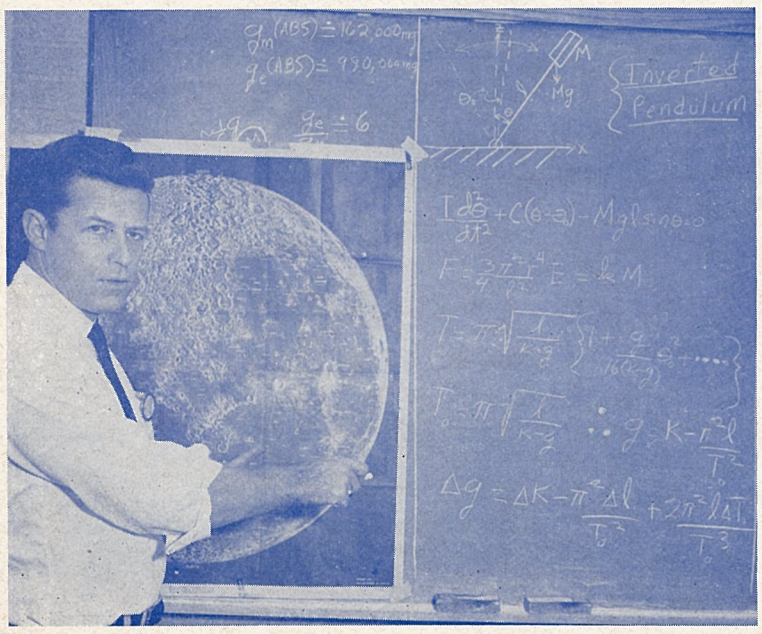
Because of distribution of earth, gravity pull is always different at various points on our globe.

A pencil dropped on a beach of sand, for example, would drop faster than one dropped on a rocky terrain. "The difference, of course, is infinitesimal," Dr. Henderson said.

"But these slight differences afford scientists knowledge of the earth's density distribution, tidal variations, etc." he added.

Dr. Henderson is seeking a device that will give scientists insight into the makeup of the moon and the depth of the volcanic material which probably comprises much of the moon's surface.

Such is the science of Geodesy —the study of the shape and equilibrium of the earth.



MOON PROBLEM — Dr. Gary Henderson of applied research laboratory at Fort Worth division is busy trying to find way to effectively measure gravity on moon.

Zoeckler Praises F-111 Accident-Free Flying

Fourteen months of "accident-free flying" for the F-111 has earned the praise of Maj. Gen. J. L. Zoeckler, USAF deputy for F-111.

"I would like to . . . commend the contractor, Air Force and Navy managerial, design, manufacturing, quality control, ground maintenance and air crew personnel for this achievement," said General Zoeckler in a letter to Col. John L. Mundorff, AFPRO.

General Zoeckler said "testing of such innovations as the variable-sweep wing, fan-jet afterburner engines, and rather radical departure from conventional landing-gear design" has been made "without serious incident."

The letter continued:

"In the interest of maintenance of this excellent record with an increasing number of F-111 aircraft entering the test inventory, it is of the utmost importance that I stress . . . my personal interest in this vitally important subject.

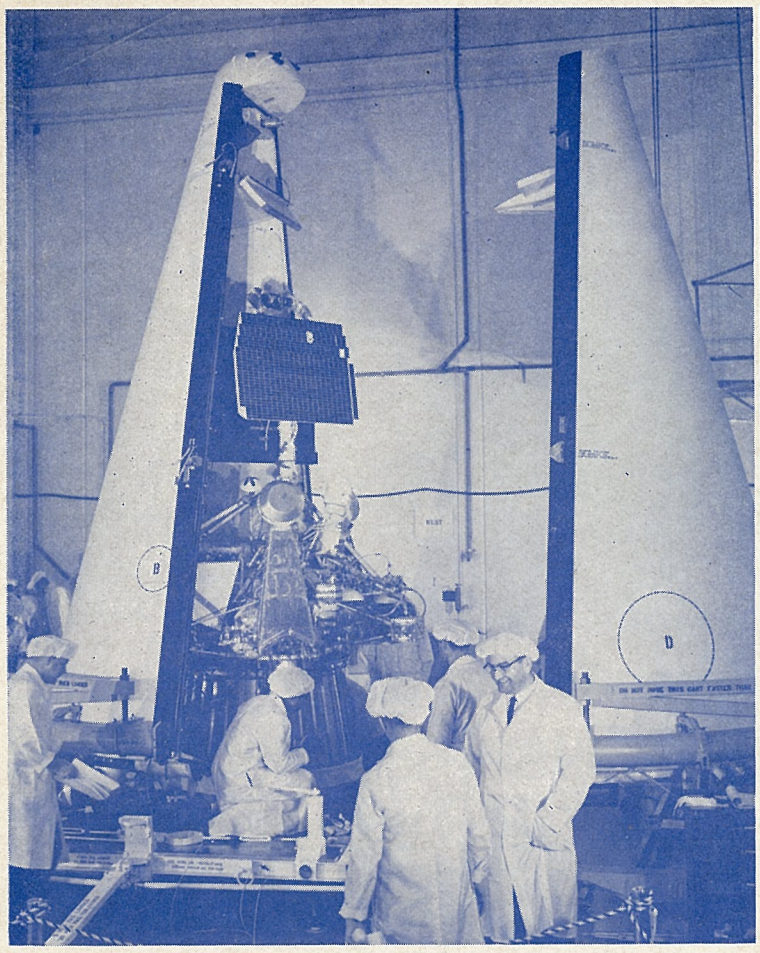
"The wide scrutiny and high-level attention on the 111 program by all levels of Government and the public make it imperative that we all continue to strive for accident-free operation, and at the same time achieve the test parameters that are necessary to assure operational readiness on the directed dates."

General Zoeckler sought the "personal support of every individual involved in the 111 program to strive for an absolute 'Zero Defects.'"



GD Associate Counsel On National Board

George A. Dies Jr., General Dynamics Corporation associate counsel, was elected this month to the board of directors for 1966 of the Manufacturers Aircraft Association. The Association administers the patent cross-licensing agreement for the airplane industry in the United States.



ENCAPSULATION — Surveyor SC-1 spacecraft, destined for landing on moon later this year, is encapsulated in nose fairing at NASA's Combined Systems Test Stand at Convair's Kearny Mesa plant before being mounted atop Centaur. Conferring in foreground are Thomas Shellum, Hughes aircraft crew chief, and M. V. Ohanesian (wearing glasses at right), Jet Propulsion Laboratory crew chief.

Acceptance Tests 'Okay' For Surveyor Program

The first full-scale Surveyor spacecraft scheduled to make a landing on the moon, and its Convair division-built launch vehicles, Atlas 290-D and Centaur 1-D, have been airlifted to Cape Kennedy following successful completion of combined acceptance tests.

Fred R. Lee Jr., chief of Combined Systems Test Stand operations, said "everyone was pleased" with acceptance tests, completed on schedule March 7 with only two short "holds" to resolve minor problems.

Convair had 90 men and Hughes Aircraft Co. and Jet Propulsion Laboratory each had 15-man crews assisting.

Officials included R. D. Ginter, Centaur project manager from NASA headquarters; J. C. Nettles, deputy manager of the Centaur project office at NASA's Lewis Research Center; Dr. R. L. Roderick and W. J. Richardson of Hughes; and R. J. Parks, K. S. Watkins and R. Crabtree of JPL. Parks is Surveyor program manager.

Recording equipment in the CSTS operations room is identical to that at Cape Kennedy and the countdown procedures used were the same that will be used for actual launch. Tests were run to coincide with an actual "launch window."

The CSTS tests create electronic simulation of almost all activity the launch vehicles will be required to perform during the moon flight except firing engines and "liftoff."

Even the umbilical cables were popped as they would be at launch.

Although the two "holds" delayed "launch" 47 minutes, the CSTS crew had a 72-minute "launch window" for the simulated liftoff.

Assistant test conductors for tests were G. G. Christ and Walter S. Becker. Paul Jackson was second shift supervisor and Robert Franklin shop supervisor.

Lead engineers were Thomas M. Sammon, mechanical systems; G. H. Owen, launch control and vehicle power; J. L. Hall, instrumentation systems; M. H. Schultz, radio frequency systems; John P. Ryan, flight control and guidance; Robert Brown, spacecraft support.

Medicare Deadline Rapidly Approaching

Retirees, employes and their dependents who are approaching age 65, or who may be age 65 or older, are reminded that time is short to sign up for Medicare. Deadline is March 31 and persons can sign up at any Social Security office.

If you were 65 before Jan. 1, 1966, you must enroll by March 31 to be covered by Medicare when it starts in July. If you do not enroll by that date, you will not have another chance to enroll until Oct. 1, 1967, and then your protection will not begin until July, 1968, and will cost more each month than if you sign now.

Dause Bibby Honored As Texas U. Alumnus

Dause L. Bibby, president of Stromberg-Carlson, has been awarded the 1966 Distinguished Achievement Award by the University of Texas alumni chapter in New York. The award is made to former University of Texas students who have achieved distinction in professional careers.

Previous recipients include Robert B. Anderson, former Secretary of the Treasury; John E. Canaday, of the New York Times; C. W. W. Cook, president of General Foods Corp.; Walter Cronkite of CBS.



IN CHARGE — Head man during "dry run" of Surveyor launch was Fred R. Lee Jr., chief of Combined Systems Test Stand at San Diego. Veteran of nine years at Sycamore Test Site, Lee is 37, a University of Nevada graduate. He has served two Navy hitches, one as an enlisted electronics technician and another as an officer.

Marine Systems Group Organized; Links EB, Quincy, Electro Dynamic

General Dynamics has formed a Marine Systems Group to respond to the expanding requirement for complete military and commercial ocean systems, Roger Lewis, General Dynamics president, announced recently.

The Marine Systems Group will be comprised of the Corporation's Electric Boat division at Groton, Conn.; the Quincy shipyard at Quincy, Mass., which is being raised to the status of a full operating division; and the Electro Dynamic division at Avenel, N.J.



C. G. Holschuh

Carl G. Holschuh, Corporate vice president has been named group vice president for Marine Systems and will direct activities of the new organization from GD's New York Headquarters.

Holschuh, former executive vice president of Sperry Rand Corp., joined General Dynamics last year **(GD/NEWS, Dec. 22, 1965).** He has had more than 30 years of manufacturing and engineering experience, beginning with Sperry Gyroscope in 1933.

"The new grouping will enable the Corporation to concentrate its full marine design, production and management capabilities on such programs as the Fast Deployment Logistics ships currently contemplated by the U. S. Navy," Lewis said. "Additionally, we feel there are promising opportunities for wider application of the Corporation's marine capabilities in the fields of nuclear and conventionally powered surface vessels, undersea systems for exploration, mining, harvesting of food and transportation, and marine system components of all types."

Within the new group, the Electric Boat division, headed by J. William Jones, Jr., as president, will be responsible for military and commercial submarine construction, other undersea equipment and air cushion vehicles. The division's Marine Technology department, which is responsible for oceanological systems at EB, last year opened a second Marine Technology Center at San Diego, to extend availability of its research and engineering services to the West Coast.

The Quincy division, which is headed by Robert V. Laney as general manager, will be responsible within the Corporation's Marine Systems Group for surface ship construction, both naval and commercial, and production of heavy equipment and components of large systems.

GD purchased the Quincy shipyard from Bethlehem Steel Co. as a closed facility on Dec. 31, 1963. Laney, who had been assistant manager at the yard since 1959 and had served more than 20 years with the Navy and the Atomic Energy Commission, became manager when the yard was reopened by GD in January, 1964.

Within 27 months the yard has earned contracts for construction of eight Navy surface ships and has grown to more than 6,500 employes. Under contract at Quincy are two ammunition ships, a submarine tender, two fleet replenishment oilers and three dock landing ships. Quincy also is performing the ship construction portion of the General Dynamics conversion of three former Navy tankers into Apollo Instrumentation Ships.

The Electro Dynamic division will be responsible in the new Corporate grouping for production of large electric motors, generators and alternators for special applications, mechanical high-energy metalforming equipment, high efficiency fans, air purification systems and other marine components and light equipment.

The division is headed by Raymond B. Carey Jr., as president. He came to the division from Electric Boat as assistant general manager, manufacturing, and was named president in 1960.

Giant Computer Effort Involved in AIS Task

A gigantic computer programming task under way during the last year for the Apollo Instrumentation Ships central data processing system, is in final stages of completion before it is put to the test aboard the USNS Vanguard, first Apollo tracking ship.

The $1 million programming effort for the three ships has been accomplished at Electronics-SD operation with assistance from Convair. Electronics-SD operation's applied mathematics group is responsible to the Electronics AIS Program Office in Quincy, Mass., for providing real-time (information transmitted simultaneously with reception) computer programming for AIS navigation, vehicle acquisition, and tracking systems.

"Formulation of a complete computer program for the Univac 1230 military real-time computers which will be the 'brains' of the central data processing system aboard the Apollo ships has been a joint effort of Electronics and Convair engineers and programmers assigned to the task during the last year," said L. N. Lawhead, Electronics-SD manager of applied mathematics. Primary object of the computer programs is to assist radar systems to locate, lock onto, and track satellites; determine orbit; record and transmit launch and orbital data to NASA's Manned Space Center in Houston, Texas.

One of the important functions of the programming is to remove the ship's motions from the data to make the computer react as if the ship were a land tracking station. Before the mission the computer samples data from each of the ship's several navigation systems, establishing "error models" so that the best data can be used during the mission for correction of radar data to the ship's pre-assigned position.

"Before each Apollo mission, the ships are assigned a nominal position — one in the Atlantic Ocean, another in the Indian Ocean, and the third in the Pacific Ocean," Lawhead explained. "However, since no ship can remain immobile at sea, this exact point can not be absolutely maintained, but all orbital data sent to Houston must be converted as if it were transmitted directly from the pre-arranged position. Therefore, our computer programming must allow for variances of the ship's position, as well as pitch and angle, and correct data transmitted to NASA so that the Manned Space Center can accurately determine the space vehicle's orbit."

Input and output of the Univac computer will be transmitted to and from NASA on high and low speed data communication links, and, at the same time, recorded on magnetic tape for post-mission analysis.

R. D. Runyan, Electronics-SD operation data systems research group engineer, is in charge of AIS programs in San Diego, with S. I. Klein responsible for definition of the computer programming task accomplished by Convair programmers.

Convair engineers reporting to R. M. Leger, chief of information systems (Dept. 591-0) and 11 programmers from scientific programming analysis (Dept. 595-0), under W. J. Schart, chief, and C. H. Gutzler, supervisor of guidance and trajectory calculations, have been assigned to the effort under a work assist authorization.

Convair programmers, headed by Clair Swarner, group leader, have accomplished the complete coding and are completing the debugging for the AIS programming—translating the mathematical formulas into computer language; developing the flow charts which show how the mathematical formulations are solved within the computer. Convair engineers, reporting to Leger, developed a large portion of the necessary mathematical information, Lawhead said.

Programming "software" will be checked out aboard ship at the Quincy Shipyard during the next month of Category II testing of instrumentation systems.

Simulated data will be fed into the computer to test programs throughout a complete mission with a typical trajectory into a known orbit. During checkouts, radar systems also will track balloons, aircraft, and the Echo III satellite as it comes within range.

Convair programmers, Matt Chirico and Tony Chang, will be at Quincy throughout the testing period with others called upon as required.

A month's course on AIS programming and how it operates was just concluded for 12 NASA and contractor personnel who will operate and maintain the data processing system on board the USNS Vanguard and Redstone. Another course will be given next month for operators assigned to the USNS Mercury. Dorothy Jirauch of Convair guidance and trajectory calculations group is instructor.

This same team of engineers and programmers are also working on an associated programming task, under an Electronics-SD operation contract from NASA's Goddard Research Center, to provide similar programming to drive display equipment for the NASA flight dynamics officers stationed aboard the tracking ships.



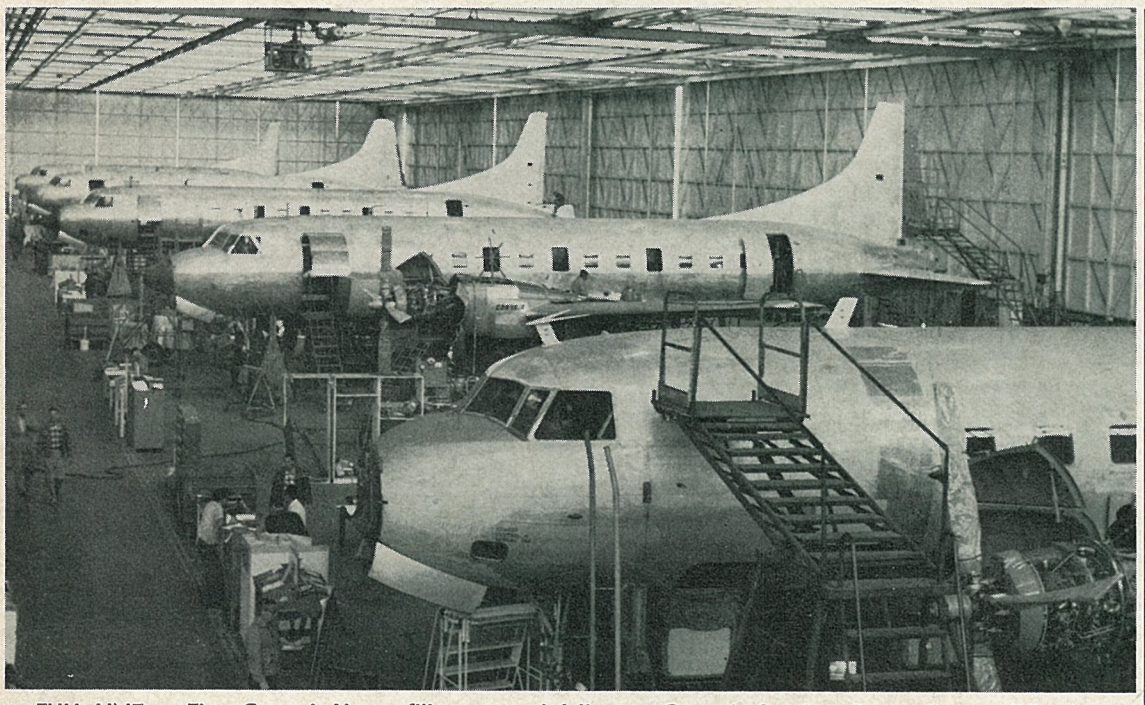
INSPECTING — Roger Lewis, General Dynamics president, right, J. William Jones Jr., president of Electric Boat division, center, are briefed on Apollo Instrumentation Ship Vanguard by program director Lewis Emmerich of Electronics division, prime contractor for AIS project.

Convair Wins C5A Empennage Contract

SAN DIEGO EDITION

GENERAL DYNAMICS
NEWS

Vol. 19, No. 6 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, March 23, 1966



FULL LINE — Five Convair-Liners fill commercial line at Convair Service Center for modification to Convair 600/640 version for Central, Caribair, Hawaiian airlines. A Central Convair 600 was delivered to Fort Worth, Texas, March 18 and a Caribair Convair 640 to Puerto Rico March 17, on schedule. Planes from Caribair and Hawaiian have been moved in to take their places.

$40 Million Order Placed

Award of a $40 million-plus subcontract to Convair division to build the empennage for the USAF C5A was announced late last week by Lockheed-Georgia Co., a division of Lockheed Aircraft Corp., following industry-wide bidding.

"Convair is extremely gratified to have won the competition," Jack L. Bowers, division general manager, commented.

"The program, along with our continued production of Atlas SLVs, Centaur spacecraft and other major space and aircraft projects, assures Convair of a strong employment base and a substantial level of business activity for the next few years."

Lockheed is designing and will develop and manufacture the fan-jet C5A, world's largest airplane, at its Marietta, Ga. plant. The award to Convair includes the vertical and horizontal stabilizers, rudder and elevator. The stabilizer, standing 63 feet above the ground, will span 68½ feet.

Lockheed is developing the 700,000 lb. airlifter under direction of the Air Force Systems Command for 1969 delivery to the Military Airlift Command.

"The C5A task will enable us to continue our fine relationship with the Lockheed Aircraft Corp., one that began with our work on the C-141 empennage, and will provide Convair with long term involvement in a very important national program," Bowers added.

Development and production activity described in the Lockheed news release is for an initial contract in excess of $40 million. The total C5A empennage program, as currently planned, is expected to amount to more than $60 million.

'Silver Cloud' Service Begun by Trans-Texas

Convair 600/640 aircraft, Convair-Liners modified to turbojet version with installation of Rolls-Royce engines, now are in passenger service on four airlines with inauguration of Trans-Texas Airways' Convair 600 service the first of the month.

Trans-Texas "Silver Cloud 600" lifted from the Houston airport at 6:14 a.m. on March 1 for its first scheduled flight to Beaumont and Dallas. The Convair 600 is in the air over 11 hours a day, making two complete circuits out of Houston to other Texas points.

L. J. Bordelon, Convair manager of customer requirements, who flew the initial flight, said that the first Trans-Texas Convair 600 is demonstrating the highest type of reliability covering the short-hop route, making 15 stops each day during its scheduled flight time from early morning until 10:15 each night.

Trans-Texas has two other Convair 240s in modification at its Houston facility with a second Convair 600 nearing completion. The airline has purchased 25 modification kits from Convair for conversion of its entire fleet of Convair 240s to the turboprop version.

Central Airlines, Inc., was first airline to inaugurate Convair 600 passenger service. It put its first Convair 600 into operation last November between Fort Worth, Texas, and St. Louis, Mo., and now has three Convair 600s making runs from Fort Worth to Kansas City and from Fort Worth to St. Louis with intermediate stops. Two more Central planes will move out of the Convair Service Center this month. The Service Center is modifying ten Convair-Liners for Central, as well as nine for Caribbean Atlantic Airlines, Inc., and seven for Hawaiian Airlines.

Caribair began Convair 640 service out of San Juan, Puerto Rico, on Dec. 22 of last year and is now using two 640s on its shuttle service between San Juan and St. Thomas, a run of 25 minutes, terminal to terminal.

Hawaiian Airlines started Convair 640 inter-island service on Dec. 23 and placed its second 640 in operation in early February. Over 450 hours have been accumulated in service from Honolulu to Maui, Hilo, Kamuela, and Kauai. The aircraft have been used up to seven hours a day in heavy weekend traffic.

Work on the Convair 640 for

(Continued on Page 2)



"SILVER" SERVICE — Trans-Texas Airways' crew and Convair representatives at inauguration of Convair 600 scheduled passenger service March 1 are, from left, Capt. T. K. Lee, Trans-Texas vice president-flight; L. J. Bordelon, Convair manager of customer requirements; Flight Officer Baxter Oakes; Sally Blackstock, hostess; John Crenshaw, Convair field service rep for Trans-Texas and Central Airlines; Frank Laffoon, former Convair field service rep, now AiResearch representative at Trans-Texas.

Convair Earns Center's Praise In FLOX Study

Convair division has been commended for its "capable management" of a series of study and test programs related to fluorine technology and use of FLOX (fluorine and oxygen) as a propellant. Tests were conducted during the past year under a $600,000 contract from NASA's Lewis Research Center in Cleveland.

D. K. Richmond, head of the guidance systems procurement section at Lewis, in a letter to Convair said "significant advances in FLOX technology have been achieved" and commended the division for "its capable management of these efforts and its demonstrated capability to execute research and development programs."

Sycamore Canyon facilities were used in the work which included compatability tests of the Atlas boil-off valve and tests for evaluation and control of oxidizer fluorine hazards in the atmosphere.

Fluorine is a hypergolic oxidizer that ignites spontaneously when coming in contact with many materials. It is desirable as a launch vehicle oxidizer because it permits more oxidizer weight to be loaded into a given-size tank to increase burn time and total impulse, both of which would greatly increase the Atlas payload.

William A. Roberts of Convair Dept. 952 was program manager for the boil-off valve tests, which

(Continued on Page 2)

WTR Vice Commander Pays Convair Visit

Col. Carl A. Ousley, vice commander of the Western Test Range, visited Convair last week for a briefing on division organization, launch vehicle programs and research and development programs.

He also conferred with Col. James R. Ourand, DCAS plant representative, and with Jack L. Bowers, division general manager, and toured the life sciences, space science and data retrieval areas.

Depts. Honored For '65 Safety Performances

Production electronics, Dept. 780-1 at Convair's Kearny Mesa plant, and the Western Test Range scored the best records during 1965 in the division's annual safety and housekeeping competition.

Trophies for these and other accomplishments were awarded this month at the annual safety awards dinner, held in CRA auditorium. Jack L. Bowers, division general manager, presented awards and M. V. Wisdom, director of industrial relations, was master of ceremonies.

Wisdom noted that General Dynamics in 1965 set a Corporate-wide goal of 10 per cent accident reduction.

"We at Convair established our own goal of a 25 per cent reduction and we exceeded it," Wisdom reported. "Frequency of medical cases was reduced by 30 per cent."

Wisdom said the Corporate goal for 1966 is a 5 per cent improvement over 1965 performance.

"We at Convair have set our own arbitrary goal at 10 per cent — and that's going to be a very difficult objective," he added.

W. U. Gatterman accepted the top trophy for production electronics and Don Fagan, Convair manager at WTR, accepted for that base.

Dept. 780-1 was in competition with 39 other operating units, while WTR competed with ETR, Sycamore and Pt. Loma test sites. Dept. 780-1's point standing was .018, achieved despite a serious medical case early in the year.

Seven other departments received trophies for having had no serious medical cases during the year. They were Depts. 780-4, 973 (Combined Systems Test Stand),

(Continued on Page 2)



SAFETY HONORS — Trophies for outstanding department safety records are displayed following presentation at annual safety awards banquet this month. Back row, left to right, J. W. Garrison, chief safety engineer, G. L. Hansen who accepted trophy for Combined Systems Test Stand, General Manager Jack L. Bowers presenting key award to W. U. Gatterman for Dept. 780-1 and W. D. Reed of Dept. 490. Front row, left to right, are S. J. Barinka of Dept. 972, Don Fagan with WTR award for first place in test site competition, M. O. Ramsey of Dept. 460, J. F. Ames of Dept. 024 and J. J. Fromlath of Dept. 759.

Last Chance For Disneyland! Two Days Left For Tickets

All set for Disneyland?

Two days remain to purchase tickets for the big five-hour General Dynamics family party this Saturday.

Tickets are $3.50 each and are available from Management Club boosters and at employe services outlets. The single admission price entitles the bearer to unlimited use of Disneyland attractions 8 p.m. to 1 a.m. No tickets will be sold at the gate.

Bob Emerson, committee chairman, said anyone purchasing tickets who is unable to attend at the last moment may request a refund on Monday.

Buses from Kearny Mesa will load in front of Bldg. 2 at 5:30 p.m. and leave at 6. Tickets are $2.25 per person.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between March 15 and March 31.

Thirty-year: Dept. 002-0, T. C. Berardini; Dept. 024-0, A. J. LeBeau; Dept. 953-2, F. R. Gaughen.

Twenty-five-year: Dept. 002-0, C. E. Haynes; Dept. 015-0, J. M. McClendon; Dept. 031-0, K. M. Hawkins, T. B. Laukkanen, M. A. Puentes; Dept. 041-0, H. S. Dent, W. S. Rutherford; Dept 112-0, H. M. Bohmbach; Dept. 127-0, H. J. Boetel; Dept. 130-1, A. C. Anderson; Dept. 451-0, J. N. Pasich; Dept. 452-0, M. A. Stutz; Dept. 527-0, W. A. Ebel; Dept. 545-0, V. J. Schack; Dept. 565-2, G. R. Shumway; Dept. 731-0, H. W. Anderson; Dept. 815-0, C. T. Talbott; Dept. 817-0, J. L. Melanson; Dept. 836-1, B. E. Smith; Dept. 838-3, R. M. Montgomery.

Twenty-year: Dept. 250-2, L. B. Buhrman; Dept. 300-3, P. S. Brown Jr.; Dept. 511-1, J. R. McLemore; Dept. 731-0, J. F. Kershaw; Dept. 970-1, A. O. Rodgers.

Fifteen-year: Dept. 015-0, V. D. Gilson; Dept. 110-1, F. S. Chambers Jr.; Dept. 113-0, W. E. Detlefs, M. H. Ellis; Dept. 127-0, J. A. Fulton; Dept. 131-4, E. V. Carson; Dept. 140-1, R. S. Kelly; Dept. 143-1, V. P. Hunt; Dept. 149-1, G. A. Gibbons; Dept. 149-2, E. G. Gibson; Dept. 170-9, E. H. Reisweber; Dept. 193-2, D. P. Lach; Dept. 193-3, R. M. Cuzner; Dept. 195-4, C. M. Gauss Jr.; Dept. 210-0, A. M. Barrie; Dept. 250-3, H. Pugh; Dept. 250-5, T. Doucette Jr.; Dept. 300-3, C. F. Wilkerson; Dept. 400-3, J. G. Moe; Dept. 454-0, E. Leep; Dept. 460-0, R. Larsen; Dept. 511-1, R. M. Buss; Dept. 521-6, V. S. Rohr; Dept. 526-2, T. W. Ochodnicky.

Dept. 545-4, J. M. Sawicki; Dept. 578-1, A. C. Durson; Dept. 588-1, L. B. Christensen; Dept. 802-0, M. Swinney; Dept. 818-1, S. M. Curry; Dept. 832-1, L. B. Wray; Dept. 835-1, E. J. Hallam; Dept. 950-8, S. L. Schmitz; Dept. 958-6, J. Q. Wickham; Dept. 963-9, R. L. Austin; Dept. 972-0, H. F. Liscom Sr., J. S. Price.

Ten-year: Dept. 001-0, J. J. Spinn; Dept. 053-4, W. E. Johnson Jr.; Dept. 126-0, E. C. DeBlanc Jr.; Dept. 127-0, C. M. Keys; Dept. 130-1, N. H. Bryant, H. L. Crowe; Dept. 140-1, J. J. Brandt; Dept. 142-1, D. E. Palmer; Dept. 142-2, I. J. Romero, R. R. Tinker; Dept. 143-2, F. F. DeMartini, C. R. Mifflin, A. R. Townsend, R. L. Wagner; Dept. 143-3, M. S. Carson, R. Z. Magana; Dept. 145-1, T. J. Buchanan; Dept. 146-3, W. F. Rice; Dept. 194-0, M. A. Barber.

Dept. 195-1, W. H. Lakin; Dept. 250-0, R. E. Bell; Dept. 250-2, R. A. Calen; Dept. 300-3, R. M. Girulat; Dept. 405-0, J. M. Rose; Dept. 420-0, M. M. Grand; Dept. 508-0, S. A. Griffin; Dept. 521-6, M. P. Billinghurst; Dept. 524-0, V. I. McKervey, M. L. White; Dept. 524-3, M. McCrary; Dept. 533-2, R. H. Boggs; Dept. 574-2, N. J. McManus; Dept. 592-0, W. E. Woodson Jr.; Dept. 593-0, H. D. Fyffe; Dept. 596-0, R. T. Murray; Dept. 733-0, D. Capatanos, J. T. Killmon; Dept. 758-0, T. J. Tocco; Dept. 759-0, V. H. DeBolt.

Dept. 780-1, O. D. Nelson; Dept. 780-2, L. E. Dudley; Dept. 780-3, J. C. Walker; Dept. 780-4, M. McLaws, M. L. Underwood; Dept. 816-2, W. W. Stiers; Dept. 818-1, R. M. Jessop; Dept. 819-0, G. B. Perkins; Dept. 832-1, A. J. Halyburton; Dept. 833-1, K. H. Hogan; Dept. 833-2, C. J. Stafford; Dept. 838-2, D. O. Turner; Dept. 870-0, D. A. Sexton Jr.

Dept. 950-3, J. W. Swigart; Dept. 961-1, R. H. Thomas; Dept. 963-8, L. W. Schenke; Dept. 964-6, W. B. Swearingen Jr.; Dept. 967-3, R. H. Gordon; Dept. 969-3, L. A. Freeguard; Dept. 974-4, R. L. Wenger; Dept. 976-3, W. C. Johnson; Dept. 979-1, L. T. Boynton; Dept. 984-4, C. A. Purdy; Dept. 985-1, J. Copeland Jr., J. H. McGan Jr., V. D. Wynn; Dept. 978-0, H. I. Greenwood; Dept. 988-9, W. J. DeLafont Jr., W. F. Morris.

STROMBERG-CARLSON

Fifteen-year: Dept. 8550, D. J. Pugh.
Ten-year: Dept. 8210, L. E. Steiner.

ELECTRONICS

Twenty-year: Dept. 4073, A. W. Lawrence; Dept. 5078, R. A. Davis; Dept. 6867, L. C. Landry; Dept. 6982, R. C. Weaver.

Ten-year: Dept. 6859, T. W. Marshall, J. B. Porter; Dept. 6867, H. A. Swanton; Dept 6882, S. V. Medigovich; Dept. 7083, L. M. Hanson.

The following service emblems were presented during February, 1966:

Twenty-five-year: Dept. 4075, A. M. Mendez; Dept. 6683, J. C. Perry.

Fifteen-year: Dept. 1251, M. P. Buffat; Dept. 4073, E. B. Eales, L. J. Moran; Dept 6478, R. C. Rand; Dept. 6574, D. L. Anderson; Dept. 6882, H. J. Ebert, J. A. Lowe, E. W. Revell.

Ten-year: Dept. 4073, B. L. Cogburn; Dept. 6683, R. J. Redlein; Dept. 6867, T. A. Balestrieri.

Retirements

CONVAIR

BERGLUND—Howard L., Dept. 836-1. Seniority date Feb. 22, 1951, retired Feb. 28.

HIATT—Jesse L., Dept. 250-1. Seniority date Nov. 22, 1955, retired Feb. 21.

ROSENBERRY—Eugene G., Dept. 142-4. Seniority date Jan. 17, 1956, retired Feb 19.

VANDERVORT—Archie H., Dept. 93. Seniority date Oct. 19, 1941, retired Feb. 28.

WARD—Raymond R., Dept. 576-3. Seniority date April 18, 1959, retired Jan. 31.

WEBB—Ivan, Dept. 041-0. Seniority date Sept. 19, 1940, retired Feb. 28.

YAGER—John C., Dept. 780-3. Seniority date Dec 7, 1959, retired Feb. 25.

General Dynamics News

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Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

Awards

CONVAIR

Employe Suggestion awards approved for the week ending Feb. 25.

Dept. 001-0, E. H. Hussong; Dept. 002, E. Fountain; Dept. 016, D. V. Cole; Dept. 101-4, F. S. Pierce; Dept. 143-2, H. M. Gallant, A. R. Townsend; Dept. 250-1, B. O. Green; Dept. 522-6, E. C. Stuart; Dept. 756-0, K. W. Doll; Dept. 759-0, F. A. Horton, L. M. Mifflin; Dept. 780-3, G. A. McCrerey; Dept. 819-0, R. C. Dorame, W. R. Porter; Dept. 847, M. F. Gonzales; Dept. 979-1, J. R. McDougal; Dept. 979-3, P. A. Saluter; Dept. 979-6, M. A. Baldwin.

Employe Suggestion awards approved for the week ending March 4.

Dept. 015, G. C. Archbold, A. Reiter, J. Tattoli; Dept. 016, W. J. Gibson; Dept. 019, W. H. Carson; Dept. 024, R. E. Cloud; Dept. 123, A. F. DiJoseph, A. J. Nybo, D. R. Pierce; Dept. 143-2, P. Plus; Dept. 149-2, B. A. Ross; Dept. 250-1, W. Goetz; Dept. 420-3, M. S. Davies; Dept. 420-7, R. L. Vincellette; Dept. 756, J. E. Anderson; Dept. 759, P. P. Standley; Dept. 780-2, P. W. Joyce; Dept. 780-4, L. L. Nelms; Dept. 847-1, B. M. Hall Jr.; Dept. 957-0, W. M. Alexander, G. M. Eckenboy; Dept. 987, B. K. Gingery.

Papers Presented

CONVAIR

CARLIN—J. E., Dept. 491-0. "Precision Tube Flaring by Controlled Metal Displacement," American Society for Tool and Manufacturing Engineers' Material Forming Seminar, New York, Feb. 8-11.

HASKINS—J. F., Dept. 572-1. "A Flat Thermal Conductivity Apparatus for Measuring Low Conductivity Materials at Cryogenic Temperatures," American Society for Testing and Materials' Symposium on Thermal Conductivity, Philadelphia, Pa., Feb. 15.

ROSE—R. G., Dept. 585-2. "Longitudinal Oscillations in Liquid Propellant Launch Vehicles," NASA Langley Research Center Symposium on Longitudinal Oscillations of Liquid Propellant Vehicles, Feb. 14-15.

SHAFER—W. A., Dept. 592-0. "Telemetering on Man Without Sensors," Medical Society of the State of New York, Feb. 14-18.

Invention Disclosures

CONVAIR

ARMSTRONG—Dr. R. C., Dept. 594-0. Temperature Control for the Dry Immersion Bed. Leak Detector and Patient Submersion Protective Device for the Dry Immersion Bed.

HEROLD—R. E., Dept. 141-3. Tube Coupling.

ROLLA—C. P., Dept. 491-0. "O" Ring Installer.

ELECTRONICS

McINTYRE—R. M. Jr. and G. W. WOLFE, Dept. 7-15. Convex-Firing Shaped-Beam Reflector Antenna.

In-Plant Training

ORIENTATION

NEW EMPLOYES — Educational services staff, Lindbergh Field, ext. 491. Bldg. 14 auditorium, Tuesday, March 29, 8:30 a.m. and 4:30 p.m. Kearny Mesa, ext. 1931, Bldg. 17, Room 3, Monday, April 4.

PROFESSIONAL/TECHNICAL

SATS-MATS WELDING—Twenty-four hours. Bldg. 2, Mats line, Lindbergh Field. Wayne Turner, ext. 491.

AIRPLANE MECHANICS (On-the-Job Training) — Eight hours per day, 26 weeks, Lindbergh Field, Bldg. 3. Coordinator, Wayne Turner, ext. 491, Lindbergh Field.

ENGINEERING HELPER TRAINING (On-the-Job) — Dave Wyche, Lindbergh Field. Eight hours per day, 20 weeks; Jan. 27-June 21; Feb. 14-July 1; March 7-July 22, Bldg. 5, Lindbergh Field plant. For information call Harry Miller, Kearny Mesa, ext. 1931; Wayne Turner, Lindbergh Field, ext. 491.

PLASTIC FABRICATION TRAINING (On-the-Job) — Lindbergh Field. Eight hours per day, 16 weeks, Jan. 20-June 10. For information call Wayne Turner, Lindbergh Field, ext. 491.

MILLING MACHINE OPERATORS (On-the-Job Training) — Eight hours per day, 26 weeks, Lindbergh Field, Bldg. 3. Coordinator, Wayne Turner, ext. 491, Lindbergh Field.

RELIABLE ELECTRICAL CONNECTIONS — Educational services staff. For information and quota call ext. 1931, Kearny Mesa. Weekly 7 a.m.-3:45 p.m., Bldg. 17, Room 10, Kearny Mesa.

OUT-OF-PLANT

TUITION REFUNDS—Employes must submit a request (Form A346) to educational services no later than THREE weeks after the starting date of the class. Requests submitted after this time will not be approved.

Personals

CONVAIR

We wish to thank our Convair friends for their expressions of sympathy following the death of our husband and father, Frank "Bob" Wineland.

Mrs. Helen Wineland, Dept. 966-6
and children.

* * *

Thank you for the beautiful floral tribute of birds of paradise and mums sent by the Convair employes to the funeral of Capt. Morris Kurtz. It was of great comfort to us.

Florence and Martha Kurtz.

* * *

I wish to thank my Convair friends for the flowers and many expressions of sympathy received at the death of my husband.

Ruth Hindman.

* * *

I wish to extend my sincere thanks to all my Convair friends, especially those in Dept. 041 and Dept. 149-2, for the flowers, cards, contributions, and prayers during my present illness.

W. A. Skinner and family
(Dept. 149-2).

Deaths

CONVAIR

CARTER—W. A., Dept. 125-0. Died March 11.

CURRIER—N. L., Dept. 250-5. Died March 10. Survivors include his wife, Irene; two sons; two grandchildren; two brothers, and two sisters.

PILCHER—M. R., Dept. 999. Died Feb. 23. Survived by wife, Clara E.; a son, Richard; one grandson; and a sister.

SEARY—Raymond E., Dept. 015. Died March 7. Survivors include his wife, Olivia J.

SNYDER—Robert E., Dept. 756-0. Died March 6. Survived by wife, Marjorie.

Convair Earns Center's Praise In FLOX Study

(Continued from Page 1)

showed Teflon seals and the Atlas boil-off valve to be compatible with FLOX.

John R. Thayer of Dept. 584 was program manager for the hazards testing which involved both electronic and photographic recording of fluorine diffusion from both hot and cold spills.

Both Roberts and Thayer were assigned to R. W. Keehn's SLV program office for the test programs.

For some of the "hot" spills, 3,000 pounds of FLOX (30 per cent fluorine and 70 per cent oxygen) were loaded in a tank ringed by charcoal or kerosene fuel in a pit. The bottom of the tank was cut away with a shaped charge and the fuel in the pit ignited simultaneously, with the resulting FLOX fireball being dispersed into the air.

In addition to use of commercially available measuring instrumentation, two new devices for accurate measurement of minute amounts of fluorine in the atmosphere were designed by Dr. Samuel Kaye of Dept. 596-0 and Don Rau of Dept. 572 and built by the Convair division. They were an electrochemical fluorine indicator-recorder and a chemical fluorine and fluoride dosimeter.

Less than one part in one million parts of air was detected at distances up to two miles from the test site.

The test program, as one of its major objectives, established feasibility of using the Sycamore Test Site for fluorine oxidizer testing and determined maximum operating conditions for flight-weight tanking and engine firing duration for Atlas with FLOX and for Centaur and Kick-stage with hydrogen and fluorine.

Smoke was used in some of the tests to make cloud trajectory more visible for recording purposes. Meteorology Research, Inc., of Altadena, a subcontractor, used a light aircraft for atmospheric sounding and cloud tracking during each test.

All the test fixtures used survived the 11 "hot spill" tests with virtually no damage.

Richmond, in his letter, said efective cost control procedures were exercised throughout the programs and strong and efficient efforts were made to keep manpower, material and propellant costs to an effective minimum. The test programs were completed on schedule and within budget.

Howard Douglass, Lewis Research Center FLOX project manager, directed the program for NASA. Harold Schmidt was technical contract coordinator at Lewis. A. E. Buggele of the San Diego NASA office was resident engineer.

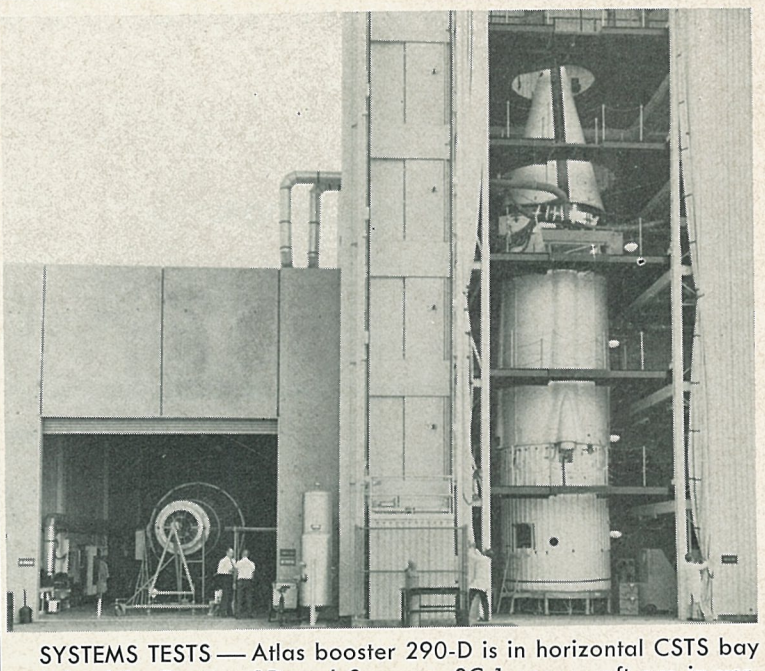
Frank Di Piazza supervised test operations at Sycamore for Dept. 976, William Gidding was test conductor, Merle Aleshire handled data acquisition and Dan Gray was responsible for engineering in connection with the boil-off valve. William McClure of Dept. 124-0 was motion picture photographer.

'Silver Cloud' Air Service Under Way

(Continued from Page 1)

Martin's Air Charter of The Netherlands began the first of February at Aviolanda, Woensdrecht, Holland. This aircraft, scheduled for completion in early April, is the first Convair-Liner in Europe to be converted to Rolls-Royce power.

"Although the limited number of Convair 600/640 aircraft now in fleet integration stages does not permit development of significant operational statistics at this time, the engine reliability, en route performance, and passenger acceptance already demonstrated clearly point toward achievement of new standards of service," Bordelon said.



SYSTEMS TESTS — Atlas booster 290-D is in horizontal CSTS bay at left while Centaur 1D and Surveyor SC-1 spacecraft are in vertical position in test bay at right for running combined acceptance test. Test was completed successfully and vehicles were shipped by air to Kennedy Space Center last week. Story on page 8.

In-Flight Refuel Probe Developed For F-102s

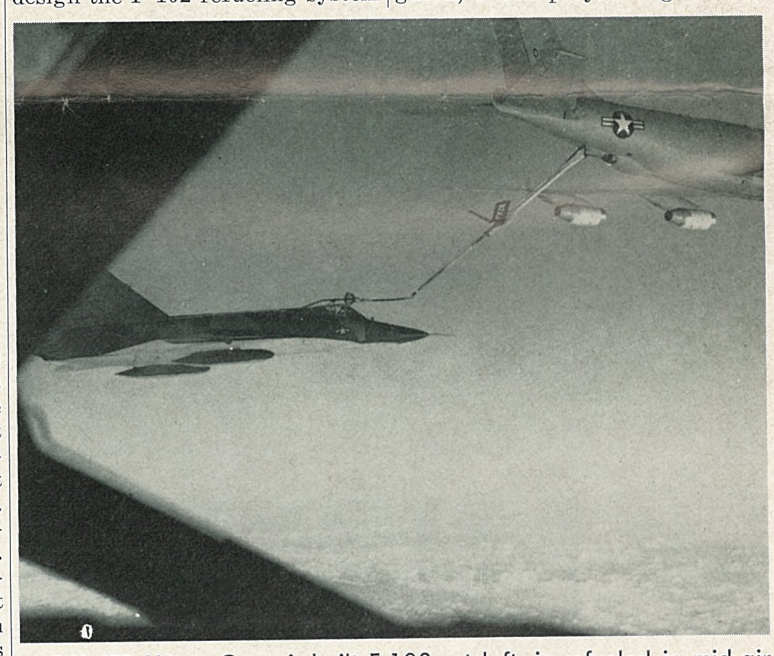
Convair division of General Dynamics has completed development of a refueling probe which will allow Air Force F-102 jet interceptors to be refueled in flight.

Convair was responsible for design, development, and installation proofing of the refueling probe under an engineering services support contract (AF41(608)-37105, task No. 1) from San Antonio Air Materiel Area.

Specifications called for a probe which can be used in hookups with the standard AF refuel drogue system on airborne tankers. Also, it was necessary to design the F-102 refueling system to allow fuel to be drawn from a tank for the plane's power plant at the same time that tank is being refueled.

In addition to design and development Convair conducted static ground tests to prove that the probe would withstand drogue loads during hookups in accordance with Air Force requirements. Flight tests have demonstrated satisfactory performance of the equipment in the air.

Convair engineering and experimental department conducted the total task which was coordinated by C. S. Brandt, F-102 program manager, and B. F. Ferguson, F-102 project engineer.



FILL 'ER UP — Convair-built F-102, at left, is refueled in mid-air from KC-135 tanker during recent flight tests of Convair-developed refueling probe.

Stromberg-Carlson and Convair Active at Quality Meeting

Men from Convair and Stromberg-Carlson played key roles in the 1966 Western Regional Conference of the American Society for Quality Control last week in the El Cortez Hotel. "Quality—Key to Survival" was the theme.

Jack L. Bowers, Convair division general manager, spoke at a March 17 luncheon. G. E. Briggs was conference chairman and L. I. Fredrickson, chairman of the local ASQC section, gave a welcoming address.

P. I. Harr, W. F. Rice, W. E. Magnuson and Rudolph Iglesias (of the NASA office) were moderators and L. I. Medlock and L. C. Stuckey introduced key speakers.

C. A. "Tony" Miller spoke on "Multi-Level Continuous Sampling—a Working Example." J. Z. Mraz and A. E. Hinck, both of the DCAS plant representative's office, served on panels.

Sam Petcher was in charge of the program, R. W. Lessard of publicity and I. L. Kemper (Stromberg-Carlson) of finance.

H. H. Mishler is vice chairman and Mraz is treasurer of the San Diego ASQC chapter.

Depts. Earn Honors For Safety Record

(Continued from Page 1)

490, 972, 460, 024 and 759.

E. D. Bryant, vice president-operations, and J. W. Garrison, chief safety engineer for the division, were among the speakers.

Bryant said that the safety competition is "really a contest in doing a good job."

John Hopman, fabrication manager at Kearny Mesa plant, commented that departments with poor safety records invariably end up with poor quality records.

JUNIOR LEAGUERS SEE CONVAIR PLANT

Fifteen women members of the San Diego Junior League visited Convair last week for a briefing on division programs and a tour of the space launch vehicle final assembly area.

Board Authorizes Redemption Of GD's Preference Stock

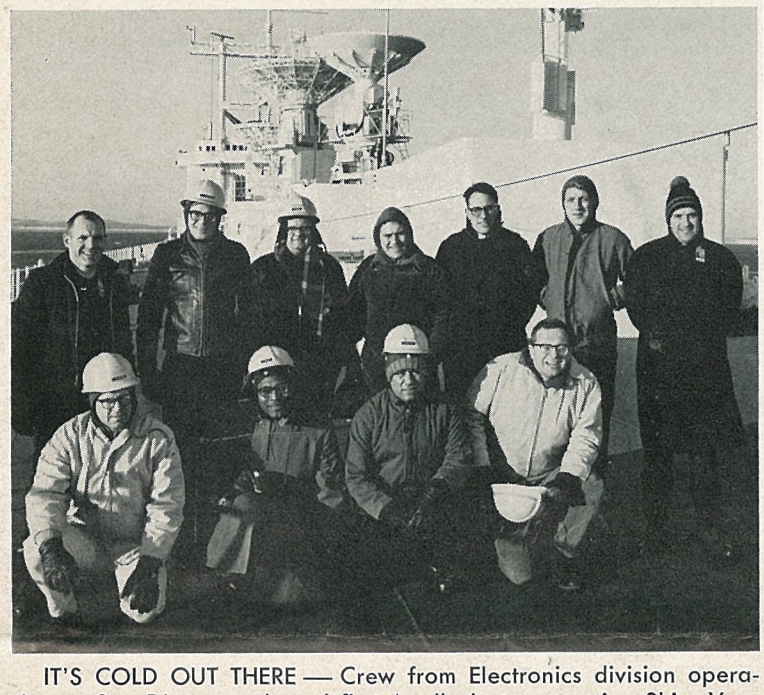
The Board of Directors of General Dynamics Corporation has authorized the redemption on April 15, 1966, of all the shares of convertible preference stock of the Corporation outstanding at that date.

The 787,214 shares called for redemption are the balance of the shares issued in connection with the merger of Material Service Corporation into the company in 1959. The preference shares are convertible into General Dynamics common stock at the rate of 1.057909 shares of common stock for each share of preference stock. The holders of the preference stock can convert into common stock through March 31, 1966.

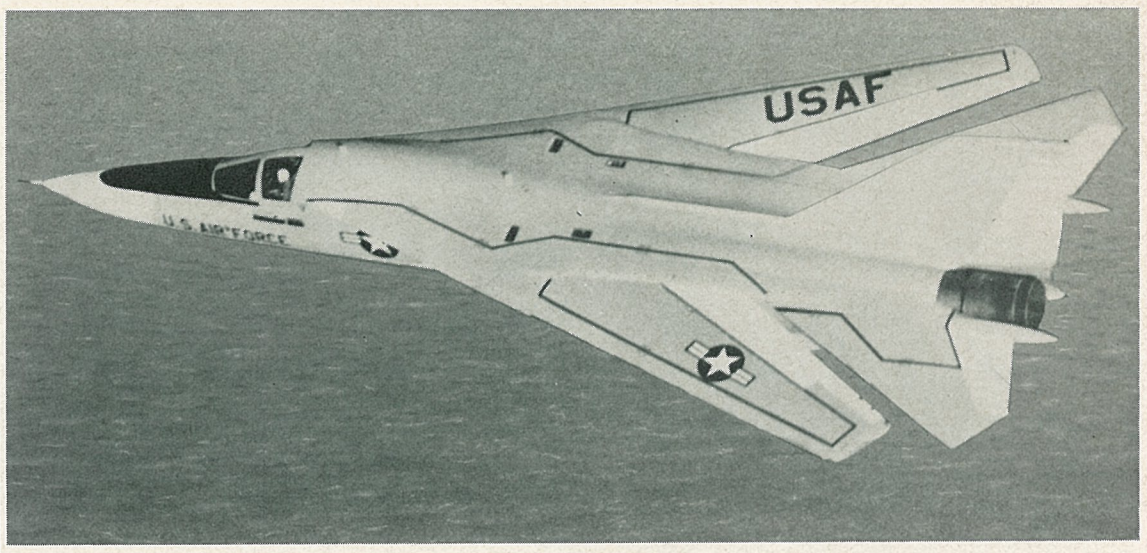
Redemption of all of the outstanding preference stock at $62.75 per share, including 84.6 cents of accrued dividends at the redemption date, will require approximately $49,400,000.

Funds for the redemption will be provided by currently available surplus funds and additional bank borrowings. On Jan. 31 of this year the Corporation borrowed $25,000,000 from the Prudential Insurance Company. This loan carried a 5 per cent interest rate and is repayable in 13 annual installments beginning in 1968, which payments can be trebled at the option of the company without premium. No new long-term borrowing will be required. The Prudential currently holds the major portion of the Corporation's long-term debt.

The preference stock terms provide for a mandatory sinking fund under which the Corporation would have been required to redeem preference shares remaining outstanding at $58.125 per share plus accrued dividends at the rate of $6 million a year in each of the years 1967 through 1973 and the balance in 1974.



IT'S COLD OUT THERE — Crew from Electronics division operation at San Diego, on board first Apollo Instrumentation Ship, Vanguard, during sea trials off Atlantic coast, shiver in mid-February chill. Bundled against cold are from left, lower row, Don Kinnaird, Don Brown of Convair, Manny Martinez, Dave Clark. From left, standing, are D. N. Hale, Roy Thompson, Frank Nelson, John Heilman, Jim Obbard, Roland Nuetzman, Henry Copeland, who heads Electronics-SD operations for AIS program at Quincy, Mass.



FAST AND LOW — Touched-up photo shows fully-swept posture of F-111 wings as versatile fighter streaked at 2,000 feet over a Gulf-of-Mexico corridor at peak speed of 14 miles a minute! F-111 is only plane designed for sustained, low-level flights.

F-111 Streaks Over Gulf Corridor During Low-Level Supersonic Runs

Flying with wings fully swept at 2,000 feet, F-111 No. 1 streaked over the Gulf of Mexico at 14 miles a minute recently to launch an extensive series of low-level, supersonic runs for the variable-wing fighter fleet.

By early March, No. 1 had completed five such on-the-deck dashes, reaching speeds of over Mach 1.1 (about 830 mph) on each run.

Four more such supersonic runs were needed to verify the F-111's freedom from excessive flutter on high-speed, low-level sorties.

"After information from the tests is carefully analyzed, we'll clear other F-111s in the program —both GD's and Air Force's—for low-level, supersonic runs to check out various systems on this type mission," said Bob Moller, manager of flight test.

Moller hailed the flights as "perhaps the most significant milestone to date in the F-111 program."

"The F-111 is the first airplane designed specifically for sustained on-the-deck supersonic performance," Moller noted. "Before we're through, we'll fully demonstrate the F-111's unique capability of penetrating enemy defenses by flying faster than sound on-the-deck for relatively long distances."

F-111 No. 1 reached speeds of nearly 830 miles an hour during each of the gulf flights. "At this speed," Moller said, "the airplane would have flown from Fort Worth to Dallas in about two minutes."

Data from the 2,000-foot altitude flights was extrapolated to forecast the aircraft's performance at near-sea level. "Actually," Moller said, "there should be little if any difference in performance at lower levels. Eventually, however, we'll be making flights as low as 200 feet over the gulf."

R. L. Johnson and W. H. Harse were pilots and O. D. Lively co-pilot on the low-level flights over the gulf corridor. The test corridor is about 100 nautical miles long and parallel to the Gulf Coast between Sabine and Palacios, Texas. It is 30 to 40 miles off-shore.

Future series of supersonic, low-level runs by F-111s will be made over both the Gulf Coast corridor and air strips off the Pacific Coast and at Eglin AFB, Florida.

Low-level tests have already been scheduled from Edwards AFB, California, in a corridor over isolated areas of Southern Nevada and California.

Isolated Areas of California and Nevada Warned to Expect F-111 Sonic Booming

Low-level supersonic flights of the F-111 tactical fighter may cause sonic boom disturbance in isolated areas of Southern Nevada and California, Air Force officials at Edwards AFB announced.

Test flights originating from Edwards, home of the F-111 Test Force, will be subsonic from the base to the Paradise Mountains of Nevada, where the aircraft will turn for its supersonic dash across parts of that state and over California's Eureka and Tanamint Valleys on the return trip.

Although the flight path was carefully worked out by Air Force and Federal Aviation Agency to avoid all populated areas, adverse atmospheric conditions at certain times could magnify the booms so they would be felt in sparsely populated regions. Nearest the route is five-mile-distant Coaldale, Nevada, with a population of little more than 15.

The two major highways which lie under the F-111's path, U. S. Route 6 in Nevada and California Route 190, will be posted to warn motorists of possible booms five miles before the affected areas.

Device Sought By Which Astronaut Can Measure Gravity on Moon

Needed: a measuring device—durable yet ultra-sophisticated—to measure gravity on the moon.

Dr. Gary Henderson of Fort Worth division's applied research laboratory is working on such an apparatus, which an astronaut can carry on his mission to the moon.

"The measuring meter must be tough enough to withstand the trip," Dr. Henderson said. "Yet it must be appreciably more sophisticated than conventional measuring devices used on earth. In addition, it must be ultra-reliable—what we call 'Astronaut-proof.' He won't be able to make adjustments in space."

A pendulum—much like the one in a grandfather's clock but more intricate—is one method used to measure gravity on earth. Dropping a falling body such as a small sphere in a vacuum is still another. But both methods involve too-delicate equipment.

"We considered using a 'thermal-motion method,'" Dr. Henderson said. "This involves measuring the changing velocity of neutrons to determine the pull of gravity. But it's too difficult to measure precisely such factors as initial temperature and velocity of neutrons."

An inverted pendulum—more involved than the type regularly used on earth—is under consideration, as is a vibrating-string method.

"The latter involves measuring gravity by the vibration of a fine string inside a vacuum," Dr. Henderson said. "It has good possibilities."

Whatever device is used, it will hopefully be versatile enough to make both absolute measurements (at a single point) and relative measurements (at scattered points) on the moon.

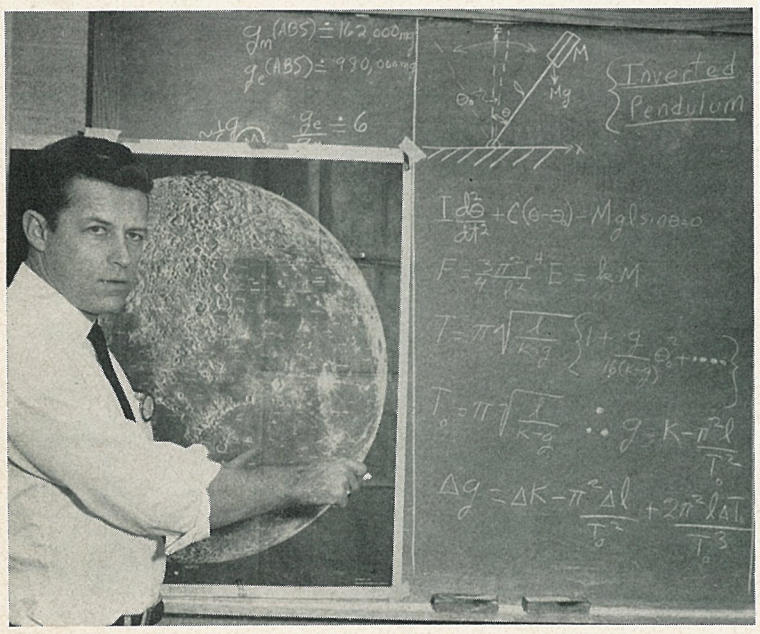
Because of distribution of earth, gravity pull is always different at various points on our globe.

A pencil dropped on a beach of sand, for example, would drop faster than one dropped on a rocky terrain. "The difference, of course, is infinitesimal," Dr. Henderson said.

"But these slight differences afford scientists knowledge of the earth's density distribution, tidal variations, etc." he added.

Dr. Henderson is seeking a device that will give scientists insight into the makeup of the moon and the depth of the volcanic material which probably comprises much of the moon's surface.

Such is the science of Geodesy —the study of the shape and equilibrium of the earth.



MOON PROBLEM — Dr. Gary Henderson of applied research laboratory at Fort Worth division is busy trying to find way to effectively measure gravity on moon.

Zoeckler Praises F-111 Accident-Free Flying

Fourteen months of "accident-free flying" for the F-111 has earned the praise of Maj. Gen. J. L. Zoeckler, USAF deputy for F-111.

"I would like to . . . commend the contractor, Air Force and Navy managerial, design, manufacturing, quality control, ground maintenance and air crew personnel for this achievement," said General Zoeckler in a letter to Col. John L. Mundorff, AFPRO.

General Zoeckler said "testing of such innovations as the variable-sweep wing, fan-jet afterburner engines, and rather radical departure from conventional landing-gear design" has been made "without serious incident."

The letter continued:

"In the interest of maintenance of this excellent record with an increasing number of F-111 aircraft entering the test inventory, it is of the utmost importance that I stress . . . my personal interest in this vitally important subject.

"The wide scrutiny and high-level attention on the 111 program by all levels of Government and the public make it imperative that we all continue to strive for accident-free operation, and at the same time achieve the test parameters that are necessary to assure operational readiness on the directed dates."

General Zoeckler sought the "personal support of every individual involved in the 111 program to strive for an absolute 'Zero Defects.'"



GD Associate Counsel On National Board

George A. Dies Jr., General Dynamics Corporation associate counsel, was elected this month to the board of directors for 1966 of the Manufacturers Aircraft Association. The Association administers the patent cross-licensing agreement for the airplane industry in the United States.





REPEATERS — Jack L. Bowers, Convair general manager, commended winners in January "Do Good Work" competition, Dept. 732 at Kearny Mesa (shot at left), which scored third win, and Dept. 016 at Lindbergh Field (right), which topped contest second consecutive time. Merle M. Goodhart, Dept. 732 foreman, accepted Craftsmanship award for KM department, while, in shot at right, Bowers presents award to Bob Ratliff, Dept. 016 assistant foreman.





SAVERS — In top photo, H. E. Moose, left, Convair material director, presents commendation certificates to P. B. McLane, center, and A. B. Mercer for multiple cost reduction suggestions that are expected to save division more than $90,000. In lower photo, M. V. Wisdom, left, Convair industrial relations director, presents certificate of commendation to Robert M. Smith, manager of professional placement and employment, for cost reduction project that will save division $53,502. Savings resulted from consolidation of former professional placement and personnel sections. Files were consolidated and work force merged for greater efficiency.

Material Control and Inventory Men Honored in Cost Reducing

Eight employes in Convair material control and inventory management, Dept. 818-0, have been awarded 17 certificates of commendation for their actions in implementing cost reduction projects during the last quarter that will save the division more than $193,000.

The cost reduction projects ranged from development of new data processing methods to elimination of unnecessary reports. The group produced the highest number of accepted cost reduction proposals in material department for the quarter.

A. B. Mercer received certificates for four projects that will save $58,612 and P. B. McLane received certificates for three projects that will save $33,526.

Others receiving certificates and amount of audited savings from their proposals are D. J. Gallagher, $17,926; W. F. Hudson, $4,973; W. R. Ingalls, $9,558; J. H. Kunkle, $18,991; Ernest Shifter, $34,836, and A. M. Goldstein, $15,499.

H. E. Moose, director of material, said Convair manages an inventory of almost 50,000 different parts valued at millions of dollars. Increased use of computers is expected to increase efficiency as well as reduce costs.

Salvage Sale Set For April 9 at LF

Only salvage sale for GD employes scheduled during the next month will be Saturday morning, April 9, at the Lindbergh Field salvage yard, adjacent to Gate 5.

Nearly 100 good manual and electric typewriters will be on sale on a first-come basis, R. H. Lange, supervisor of material sales, said. Sales hours are from 8 a.m. until noon.

Magnuson Speaker On 'Do Good Work'

W. E. Magnuson, chairman of Convair division's "Do Good Work" program, was guest speaker from industry last week at a U. S. Army-sponsored Zero Defects Workshop in Honolulu, Hawaii.

The workshop provided training for representatives from Army commands under the jurisdiction of the Commander in Chief, U. S. Army, Pacific (CINCUSAPAC).

Magnuson gave an address on the philosophy and concepts of zero defect-type programs in industry, took part in a panel discussion and conferred with workshop instructors and with workshop groups during their study sessions.

Con-Trib-Club Funds Pledged To Help Troubled Children

Convair Employes' Con-Trib-Club has pledged $54,206 to the Boys' and Girls' Aid Society of San Diego for construction of one of five cottages at the Society's new 28-acre building site near El Cajon. The new facilities will cost a total of $610,000, as planned.

An initial check for $10,000 was presented recently to W. J. Stanley, president of the Boys' and Girls' Aid Society (and Convair division manager of plant engineering) by Ernest Larsen and Willard Russ Jr. of the Con-Trib Committee.

The remaining $44,206 is to be paid in four annual installments.

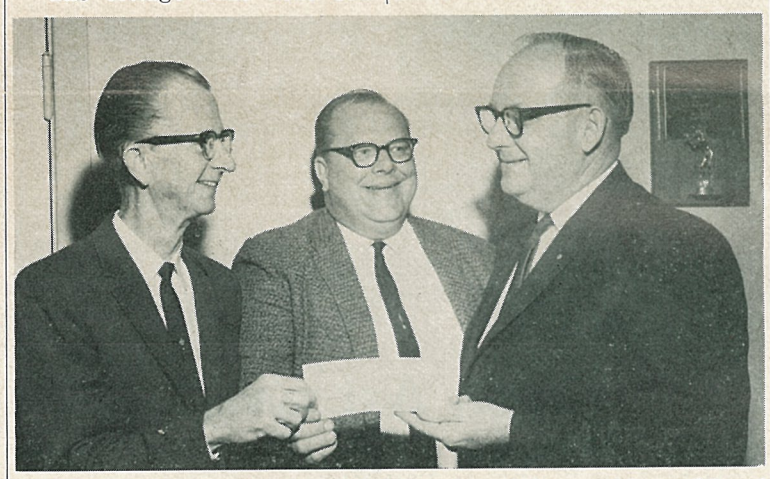
Stanley said the five cottages will provide housing for 55 youths between 13 and 17 years of age who have emotional and behavioral problems. Three of the cottages will be for boys and two for girls.

"The cottage built with Con-Trib funds will provide a tangible point for further participation by interested Convair employes in working with the boys and girls to develop their vocational skills," he said.

Each of the cottages will have three triple and two single rooms, an apartment for the house parent, an activity room and a laundry alcove.

A classroom and administration building to be constructed at the site will include classrooms and study areas, library, offices for counseling, administrative offices, kitchen and dining facilities and an infirmary and nurse's office.

Although some of the children will attend public schools, others "too far behind" will receive individual instruction from Grossmont district teachers.



CHECK FOR COTTAGE — W. J. Stanley, right, president of Boys' and Girls' Aid Society of San Diego, receives $10,000 check from Ernest Larsen, left, and Willard Russ Jr. of Convair Employes' Con-Trib-Club Committee. Con-Trib has pledged $54,206 for construction of new cottage.

Mayor Tours Convair Facilities To View On-The-Job Training

Mayor Frank Curran and other San Diego City officials visited Convair plants early this month to view on-the-job training now in progress under a contract with the Mayor's Committee for Jobs, Inc.

Convair and the Convair Service Center now have more than 100 previously unskilled workers in training under provisions of the federal Manpower Development and Training Act.

Mayor Curran, members of the city council, and others toured the vestibule school which is familiarizing air mechanic trainees with the trade before they are assigned to the Convair Service Center production line.

They also were briefed on production work at the Service Center and Lindbergh Field plant before visiting Kearny Mesa plant facilities. Jack L. Bowers, division general manager, explained Convair organization and products. R. T. Blair Jr., assistant to the general manager, hosted briefings and facility tours.



MAYOR'S TOUR — San Diego Mayor Frank Curran (third from right) and other civic officials hear Sam Galasso (second from left) of Convair educational services explain on-the-job training program in Convair Service Center vestibule school during recent tour.

Space Vehicles Play Key Roles

Convair division-built space vehicles are playing key roles this month in important space ventures.

Countless eyes watched TV screens last week as Atlas SLV No. 5302 took off from Kennedy Space Center's Complex 14 to boost the modified Agena D target vehicle into space for docking maneuvers involving Astronauts Neil Armstrong and David Scott.

Agena was accurately positioned, and docking accomplished, though maneuvers were terminated prematurely because of turbulence.

Other impending missions include:

Convair-built twin satellites 4 and 5 in the OVI series are scheduled to ride into space on the nose of Atlas 72-D from Vandenberg AFB's ABRES B Pad 3 this week. The satellites, both containing a variety of scientific experiments, are to be placed into different circular orbits. The Atlas also is to carry a side-mounted scientific passenger pod with instrumentation for five other experiments.

Atlas SLV-3 No. 5001 and its Agena second stage later this week will send a 3,900-pound Orbiting Astronomical Observatory spacecraft from Kennedy Space Center's Complex 12 into orbit for astronomical experiments. The OAO will give earthbound astronomers a "new look" at the universe from a vantage point above the distortions caused by the atmosphere.

Atlas-Centaur Eight (Atlas 184-D and Centaur 6-D) next week will send a mass model representative of a Surveyor spacecraft from Kennedy Space Center's Complex 36B toward a "simulated moon" point 240,000 miles in space. AC-8 is to prove Centaur's ability to restart its engines after a 25-minute "parking orbit" coast in space. AC-8 also will be the first to fly the new RL10A-3-3 liquid hydrogen engines and an improved guidance and flight control system.

Convair vehicles also were being used in other ETR launches during the month.

Already "in the wings" at Cape Kennedy are Atlas SLV-3 No. 5801 which will launch the United States' first Lunar Orbiter spacecraft and the Atlas-Centaur Ten vehicles (Atlas 290-D and Centaur 1-D) which are to send the first full-scale Surveyor SC-1 spacecraft for a landing on the moon.

'Practical Politics' Course Scheduled

A special three-month pilot course in "Practical Politics" has been scheduled for Convair Management Club members Monday evenings beginning next month.

The course will be educational and nonpartisan. It is designed to help individuals learn how to become politically active and effective.

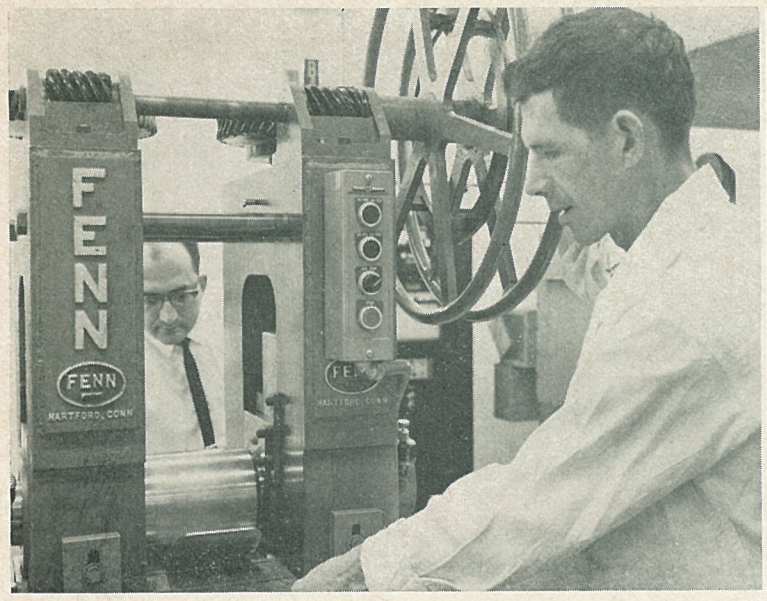
Sessions will be from 4:45 to 6:45 p.m. from April 11 through June 13 (except April 25) in Bldg. 17, Room 3, at Kearny Mesa. Registration will be limited to 20. Only cost will be $3 for text.

Further information may be obtained by contacting Robert Williams, KM ext. 1122, mail zone 586-00.

USIA Movies Slated For Showing Tonight

San Diego Chapter of the Industry Film Producers Association will host the local premier showing of three United States Information Agency films at a meeting at 8 p.m. (March 23) in the Naval Electronics Laboratory theatre.

Bruce Herschensohn, producer of the three films and a former Convair employe, will be present. Convair personnel wishing to attend as guests have been asked to call Robert Montague, KM ext 1525.



ALLOY DEVELOPMENT — Charles Kropp, in background, and Gerald L. Hill roll a sheet of titanium alloy through rolling mill in Convair division's advanced materials laboratory. They seek development of superior titanium-base alloy.

Study Aims at Finding New Alloy For Use in Future Space Vehicles

A metallurgist and an advanced materials laboratory technician at Convair division's Kearny Mesa plant are conducting studies with new alloys expected to lead to a superior titanium-base alloy for use in aerospace vehicle applications.

Charles Kropp, senior engineering metallurgist in Dept. 572-1, is project engineer and Gerald L. Hill is laboratory technician for the project, which is being conducted under a contract administered by the Air Force Materials Laboratory at Wright-Patterson AFB, Ohio.

During the first year of the study and the first of its three phases, 50 metal alloys were blended in the laboratory and run through an initial series of tests.

Five of the best are being used for more extensive evaluation in the second phase of the study. All contain aluminum, columbium and tantalum in a titanium base with various blends of other metals including tin, vanadium and molydenum.

During the third phase of the project, a large ingot of the best alloy found is to be evaluated and a 2½-square-foot quantity of the new material will be delivered to the Air Force Materials Laboratory for use in other studies.

"Our goal is to develop a new sheet metal suitable for use under liquid hydrogen conditions," Kropp said. "We have to build up strength and still maintain an alloy that's weldable."

Kropp explained that the new alloy must have good formability at room temperature and still have adequate toughness and strength at temperatures varying from room temperature to the –423 degrees Fahrenheit produced by liquid hydrogen.

There is one aluminum and tin titanium alloy material now available commercially that performs well under cryogenic conditions but not at normal room temperature. "We've taken off from that and have succeeded in altering that alloy to give it better room temperature properties," Kropp said.

Creation of a higher-strength titanium-base alloy can enable space launch vehicles to carry higher payloads without an increase of weight of the vehicle itself.

Hill, who has been with Convair since 1959, compacts the various prescribed alloy chemistries. The two-inch compacts then are fusion welded into a consumable electrode "pig." The "pigs" are melted and remelted into 3, 4 and 6-inch ingots in a 4,000-degree vacuum arc furnace in the laboratory.

The ingots are dressed on a lathe, forged by a hot press and cut into sections. The sections then are alternately rolled through a press and machined to remove oxides until they have been rolled down to .050-inch in 6x6-inch sections in the laboratory rolling mill.

Specimens measuring 1x4 inches are then cut for use in testing. Among tests being run are tensil, bend and fatigue tests to determine strength, a cup test to determine formability and welding tests to determine weldability.

The Titanium Metal Corp. of America in Henderson, Nev., is making chemical analysis of the resulting alloys and has forged some of the new alloys on a 600-ton press forge.

Personnel in manufacturing development Dept. 490 at Kearny Mesa have assisted with fusion welding of first-melt consumable electrodes and personnel in Dept. 731's machine shop have machined the specimens. Welding tests in which a tungsten gas welding process is used in a straight-line welder have been done by process development Dept. 572-2 personnel.

SEALAB DESCRIBED FOR SCIENCE CLUB

Color slides and information on the Sealab II project conducted off La Jolla last fall were presented by Ronald Sweig, Sealab press officer, at a meeting of the Convair Science Club last Friday. High school age children of Convair employes are invited to attend the club's bi-weekly meetings in CRA Clubhouse.

F-111As Will Fly For AF Show

The Air Force F-111A will demonstrate its sweep-wing capability during an air show at Carswell AFB March 24 through 26.

Two F-111As will participate in the show, held in conjunction with the 20th anniversary convention of the Air Force Association in Fort Worth-Dallas March 22-25.

One F-111A will be on static display all three days; the other will put on a five-minute aerial performance each day.

The F-111A flights will include: a high subsonic-speed pass over the field at an altitude of 250 feet; a climbing turn over the base, during which the wings will be moved through a full-sweep cycle; and a third pass in which the wings will be swept rearward.

Test aims of the F-111A will be carried out during the flight.

The F-102, F-106 and B-58 Hustler are among other General Dynamics airplanes which will participate.

Get Reservations For Vegas Weekend

Reservations are coming in fast for the CRA-sponsored trip to Las Vegas the last weekend of April (29-30 and May 1).

So far, the air flight with added attractions has been most popular of the four package deals offered.

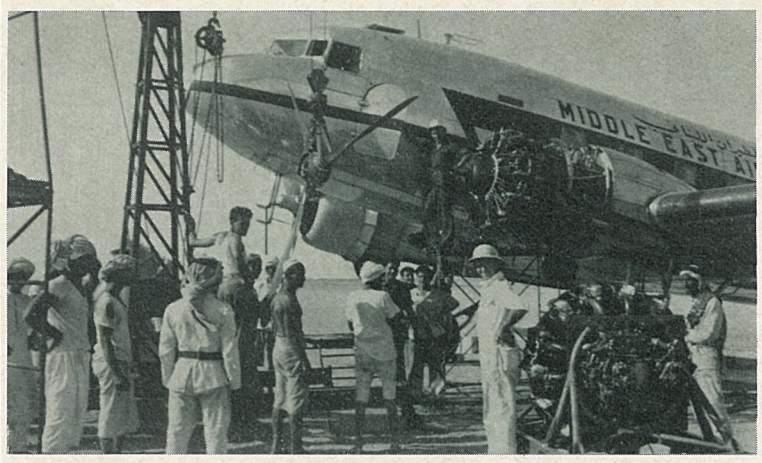
Decision on the type of trip depends on how many sign and their choice of bus transportation, two nights at the Stardust Hotel at $25, or air for $42.50 per person.

The other package deals include nightclub shows, drinks, $5 in chips, dinner and two breakfasts with total price by bus, $41.50, and by air, $59.50.

Call ext. 1111, CRA Clubhouse, KM, as soon as possible to sign and state preference.

BARGAIN MOVIE RATES OFFERED

Exchange tickets are available at all plant employe services outlets to movies showing at Cinema Grossmont, Hwy. 80 and Jackson St.; Cinema 21, 1440 Hotel Circle; New College Theatre, 6303 El Cajon Blvd. They allow reduced prices on admission to performances Sundays through Thursdays and all matinees.



PIONEER — H. H. Mishler, now of Convair, is shown in foreground, wearing helmet, as he looked in early days of Middle East Airlines, Lebanon.

Language Problem

Convair Man Holds Lebanese Air Mechanic License No. 1

H. H. Mishler, a senior quality control engineer, Convair Dept. 959-0, and his wife are featured in a special edition of a Middle East Airlines magazine commemorating the line's 20th anniversary.

Mishler served as the line's chief maintenance engineer during its first two years. His wife, Emelia, was the line's first hostess. (She served for seven weeks, married Mishler and "retired.")

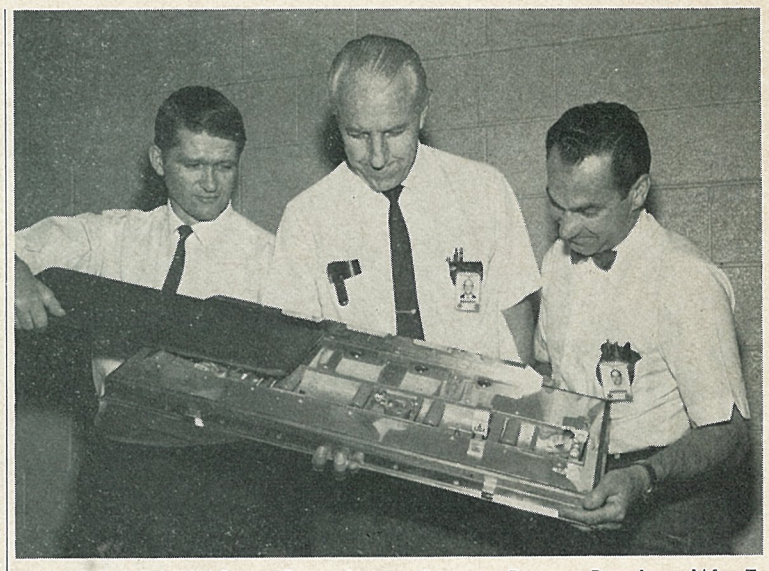
Mishler worked at Convair from 1940 to 1942, served four years in the Air Force and was discharged in Cairo, Egypt. Sans passport, he smuggled himself aboard a plane to Beirut, Lebanon, and joined the new airline.

"We had three DC-3s to start with and used all local mechanics. I didn't speak Arabic and they didn't speak English!"

Probably Mrs. Mishler was a help in this department. Educated in Turkey, she speaks Arabic, English, French and Turkish.

Among Mishler's possessions is a Lebanese aircraft and engine mechanic's license—the first issued by Lebanon.

Mishler ultimately returned to the States and Convair and has served as inspector, supervisor and engineer. The Mishlers live in Fletcher Hills and have three sons, 11, 13 and 15.



EASY LOADING — Convair engineers Bruno Bracka, W. E. Service, and Robert McGregor, display "suitcase" model of DC-9 cargo floor developed for Douglas Aircraft Co. Bracka shows how cargo pallet slides over rollers as it is positioned in plane's fuselage.

Cargo Floor Design Transforms Transport Into 'Station Wagon'

Convair engineers this month delivered a "suitcase" model of a new cargo floor designed for Douglas Aircraft's DC-9 version on order by Trans-Texas Airways.

Convair is responsible for structural and mechanical design of the unique convertible cargo-passenger floor concept under a Douglas engineering contract received last fall. Design of the fuselage cargo floor, floor support structure and mechanisms will be completed by mid-April.

"You might say that this cargo floor transforms the jet transport into a station wagon," John Burgeson, Convair group engineer in charge of structural design, said. "The aircraft can be operated in the typical all-passenger configuration, or partial passenger and partial palletized cargo, or all palletized cargo with quick change-over in less than an hour at any airport."

A new-type passenger seat, which can be folded and moved forward and aft to provide space for cargo, will be used. When the plane is operated as an all-passenger craft, the cargo floor's mechanisms are inverted to provide a smooth passenger floor. When operated as a combination passenger-cargo, or all cargo configuration, the roller conveyor sections are turned over and locked into position. The floor is built in sections to accommodate cargo pallets, 88x108-inches in size. Any number, from one to six, can be turned over for cargo with partitions separating the cargo section from passenger areas. The wooden pallets bearing the cargo are loaded by fork lift through a side cargo door, then pushed over the rollers into position.

Structural design engineers under Burgeson and mechanical design engineers reporting to Jerry Hawkins, group engineer, have developed the versatile "flip-flop" floor to Douglas' specifications, incorporating Douglas rollers and the patented Douglas lock as securing device between pallets. Convair engineers designed the end and side locking mechanisms.

The "breadboard" model is realistic in every aspect with rollers and latches operating exactly as on the full-scale cargo floor. Douglas will use the model in demonstrations to customer airlines.

In addition to this cargo floor, Convair engineers also are working on floors for other Douglas planes. They are designing cargo floors for the DC-8 elongated version ordered by Panegra Airlines; Overseas National Airlines' DC-9 which will use tracks for installation of seats or cargo rollers; Continental Airlines' DC-9, which calls for seats on pallets to be installed over the cargo area when used in the passenger configuration.

Director of British Firm Visits Convair

Dr. G. H. Hough of Hatfield, England, technical director and a member of the board of directors of Hawker Siddeley Dynamics Ltd., visited Convair's Kearny Mesa plant recently.

He met with Jack L. Bowers, Convair general manager; G. L. Hansen, vice president-launch vehicle programs, and E. R. Peterson, vice president-research and engineering. He was a guest in San Diego of J. R. Anderson, Hawker Siddeley Dynamics resident representative at Convair.

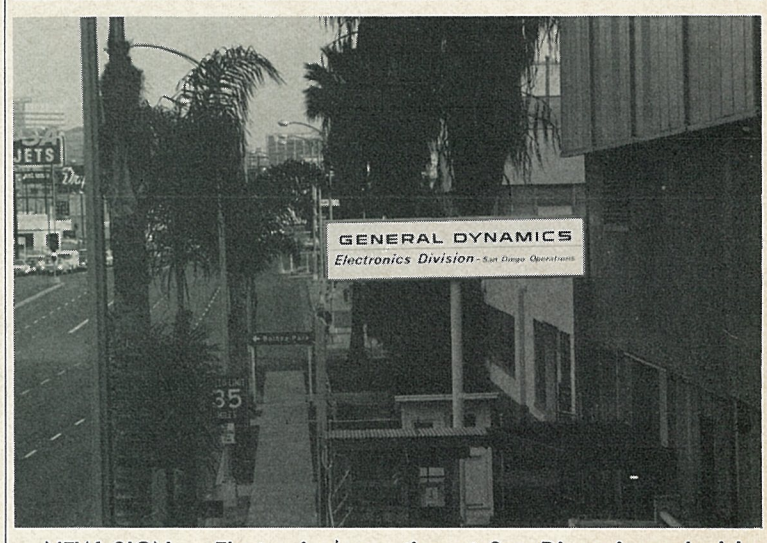
Hawker Siddeley Dynamics builds the Blue Streak launch vehicle and has a limited technical assistance contract with Convair.

April 14 Deadline For Vote Registration

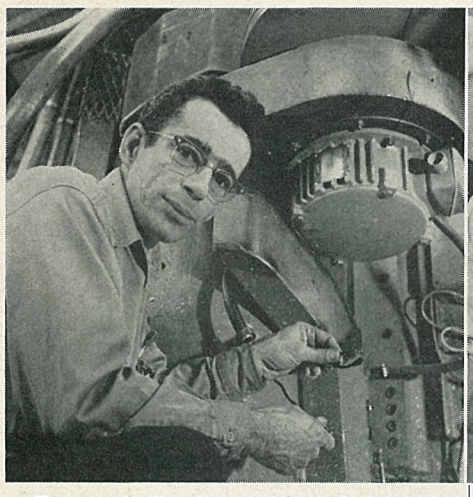
April 14 is final day to register to vote in the June 7 primary election.

Individuals must be 21 and a resident of his precinct 54 days, the county 90 days and the state one year to vote in the California primary. Persons who failed to vote in the 1964 general election must reregister.

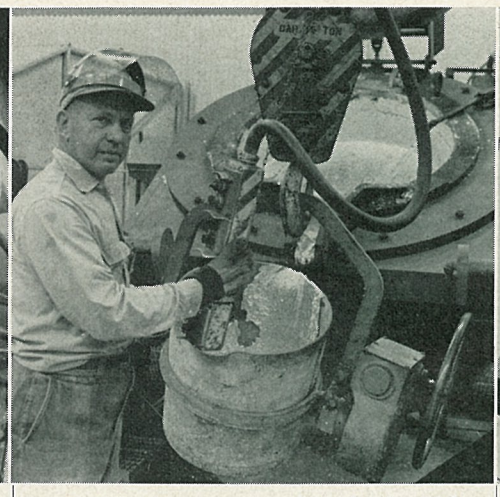
Names and addresses of registrars in each area of the community can be obtained by calling the Registrar of Voters' office, 278-9400.



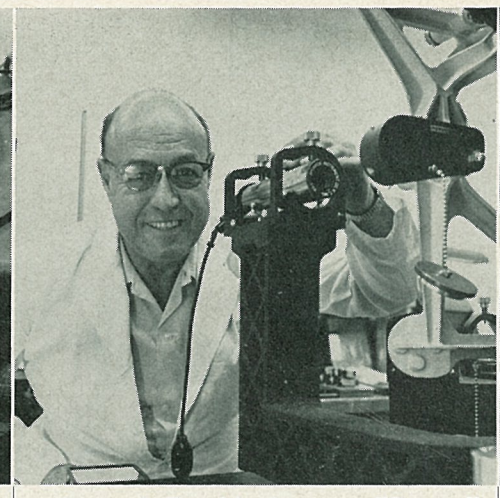
NEW SIGN — Electronics operation at San Diego is marked by large sign erected this month over recently-opened access from Pacific Hwy. to Electronics - SD facility in Bldg. 51. Gate is open to both Electronics and Convair employes.



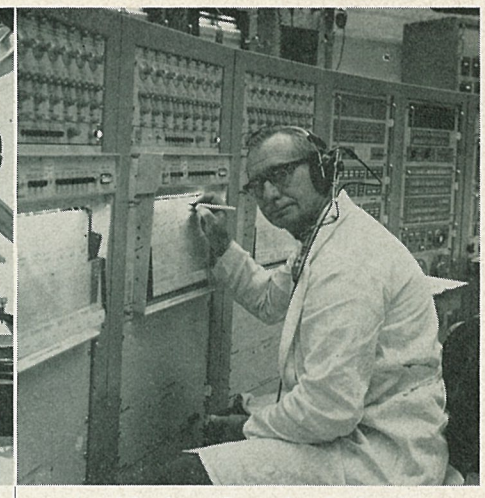
Tommy Hall, electronics technician in plant engineering at Lindbergh Field plant, wires the motor on the large Giddings and Lewis numerically-controlled milling machine in Bldg. 1. Hall, who marked his 15th year at Convair Jan. 8, is one of those who repair and install all of the plant's machine tools and mechanical equipment. He's been on second shift for the last 2½ years. While with the company Hall has taken many industrial electronics courses, in-plant and out, to further his own knowledge and career. He was one of five sent by the Company to Bendix Corp., Detroit, for a course on electrical operation and maintenance of the Dyna Path numerical control which operates the G&L milling machine. He has a fully-equipped electronics shop set up in his garage for his own research and development circuitry projects. He also has quite a collection of pistols and likes target practice.



Gabriel Dugue, a molder in the Bldg. 27 foundry at the Kearny Mesa plant, is a native of Lyons, France, and has lived in the United States since 1941 and in San Diego the past 13 years. He operates 75-gallon capacity furnaces for melting kirksite zinc-alloy metal for making drop-hammer dies and stretch forms and lead for making punches and two to three-ton weights. The big furnaces, controlled electrically, tip forward to pour the molten metal into big ladles which are moved by overhead crane to molds. Special molding sand is used to form the mold into which the metal is poured. Dugue is vice president of the French Cottage in the House of Pacific Relations complex in Balboa Park and enjoys fishing for trout in the High Sierra. He and his wife live in Lemon Grove. A son, Regies, is a Navy lieutenant. Dugue previously worked as a molder in France and at North Island Naval Air Station.



Lyman L. Tremble, known as "Pappy," has spent 43 years — 25 of them at Convair — in precision gauge work. Now a senior calibration technician in the dimensional calibration lab (Dept. 142-2) at Lindbergh Field plant, he entered the field in the early '20s with a seven-year apprenticeship at Ford Co. He joined Convair as a tool proofer in 1941 and was assigned to the calibration lab in Bldg. 1 in 1942. He was tool inspector on B-24s and Convair-Liners and tool inspection supervisor, responsible for check of large fixtures for F-106s, 880/990 transports. Convair's present all-steel insulated temperature-controlled lab was built five years ago. Precision instruments are certified for Convair, General Atomic, Stromberg-Carlson, Electronics, and many outside companies. In this photo Tremble is at the bore-sight master gauge checking curvatures of screens of an Electronics-built radar.



Lloyd Bush, a Convair missile electronics checkout mechanic, is shown operating a flight control system recorder during a test conductor's integrated release sequence test at NASA's Combined Systems Test Stand at Kearny Mesa. Bush is a retired Navy commander who received the Bronze Star for meritorious submarine service during World War II. After serving on the submarine Permit and the submarine tender Sperry, following World War II, he commanded a Rhine River patrol using patrol and landing craft. Bush has been at Convair eight years and previously served as a space systems electronics technician on the Atlas line in the Kearny Mesa factory. He and his wife, Lois, live in Spring Valley but spend most of their weekends in a trailer they own at Pala Verde Valley on the Colorado River. Both enjoy fishing for bass and catfish and Bush is a member of the Pala Verde Gun Club.

Mobile Vibration Laboratory Housed in Special Trailers

A new mobile vibration laboratory, concentrated in two trailers, now enables Convair division engineers to perform vibration tests in remote areas when hazardous test conditions are involved.

Electronic equipment valued at more than $100,000 is included in the two mobile units. Cost of trailers and installation was less than $50,000.

The self-contained vibration lab was put into use early this year and has been used at both the Sycamore Canyon Test Site and Test Site B. (liquid hydrogen).

George Conrey, test lab group engineer in Dept. 578-1, said use of the mobile lab is expected to save the division $135,000 this year, largely because liquid hydrogen can be substituted for liquid helium in vibration tests run with the mobile equipment. Liquid hydrogen costs about 55 cents a gallon and liquid helium about $11 a gallon.

Savings from use of the lab during the first month of operation totaled $22,000. The first test in which it was used—an SLV flox boil-off valve test conducted at Sycamore Test Site—resulted in a $5,500 saving. The mobile lab is expected to be used in 12 major Centaur test programs scheduled for this year.

The mobile lab was conceived by James Peterson, senior test lab engineer for Dept. 578-5, and was endorsed by Ronald Rovenger, NASA's Centaur assistant program manager. Joseph Dorsch, senior test engineer, assisted with planning and coordinating instrumentation.

Outfitting the trailers was accomplished by Dept. 756, plant engineering, and Dept. 578 test laboratories personnel.

The smaller accessory trailer is used to haul the 6,000-pound vibration exciter and is equipped with a five-ton monorail hoist that can be extended out seven feet from the trailer for loading and unloading. It also houses a transformer and heat exchanger.

The 40-foot control van houses a 40 KW power amplifier, control units and instrumentation needed for the vibration tests to be performed. It is equipped with air springs to eliminate danger of damage to the electronic equipment from driving over rough terrain.

A 100-foot electrical cable connects the exciter with the accessory trailer and a 280-foot electrical cable connects the control van with the accessory. This enables testing of the vibrating component on the exciter several hundred feet away from test personnel in the control van.

Conrey said the mobile lab can be used at any remote location where power and water are available.

"It can be moved from one location to another and set up for a test within eight hours," he said.

When not in use at remote sites, the mobile lab is parked outside the Bldg. 15 test labs at Kearny Mesa and used as an extension of that facility.

Dr. Franklin Dixon Visits Kearny Mesa

Dr. Franklin P. Dixon, NASA director of manned planetary mission studies, visited Convair's Kearny Mesa plant Friday while on a West Coast tour to confer with aerospace contractors.

Purpose was to describe for division officials what his Advanced Manned Planetary Missions office at NASA headquarters sees for the future in the manned space area, and to learn more about Convair capabilities.

C. S. Ames, military space programs vice president, served as host.

Sports Car Drivers To Visit Museums

Sports car buffs will have a chance to see thoroughbreds of the sports, classic, and Grand Prix car classes in a visit to the Briggs Cunningham Automobile Museum at Costa Mesa Sunday, April 3.

Anyone wishing to join the caravan may meet at the La Jolla junction on Hwy. 101 at 8:30 a.m. that morning.

CRA Commissioner Gerry Wright said that the museum's collection includes over 50 of the world's most fabulous cars. The afternoon will be spent at the Paul Mantz Museum of antique airplanes which is in the same general vicinity.

A spaghetti dinner will highlight the Sports Car Club's next regular meeting April 13 in the executive dining room, Lindbergh Field plant. Reservations must be made by April 8 with Bob Hayward, home phone 223-7944.

Joe Olander Leads Rancho Bike Jaunt

Fifteen members of the CRA Bicycle Club took a 20-mile cycle tour of Rancho Santa Fe March 12. Joe Olander was group leader.

The club's next meeting will be 7:30 p.m. March 28 in CRA Clubhouse, Room C. Bill Caldwell of Spring Valley will speak on how to select a bike, maintain and ride it properly.

FLIGHT CONTROL WINS HOOP CHAMPIONSHIP

Flight Control hoop squad came from behind in the last 5 seconds of play March 16 to defeat IBJOB team, 42-41, and win the Convair shop league basketball tournament.

Both Flight Control and IBJOB had gone undefeated in the second half of tourney play before clashing in the playoff, a nip-and-tuck game that saw the lead change hands several times before the final gun. IBJOB won the championship last year.

Trophies will be presented at an awards dinner at 6 p.m. tomorrow in the Convair executive dining room, Kearny Mesa.

Adventurers Plan Punta Diggs Return

Adventurers will make a return trip to Punta Diggs, 15 miles south of San Felipe in Baja California, over the weekend of April 2-3.

The 40 who traveled to the isolated beach site for the club's first outing there early this month were so enthusiastic that they have demanded another visit.

Families will meet at San Felipe at 8 a.m. on Saturday morning and caravan to the camping area. Camping equipment, food, and water must be carried in for the two-day stay. Call Jorge Zorrilla at his home phone, 454-1374, for information.

Evening Swimming Classes Possible

Convair employes and family members who would like to enroll in evening aquatic classes ranging from beginning and advanced swimming instruction to lifesaving, skin diving and scuba diving are asked to phone CRA Clubhouse, KM ext. 1111, to leave name and type of class desired.

Glenn E. Peace, a property auditor in Dept. 191-0, said arrangements can be made with the Copley YMCA and American Red Cross to offer classes.

He said there would be no charge for instructors but a minimal fee for pool facilities.

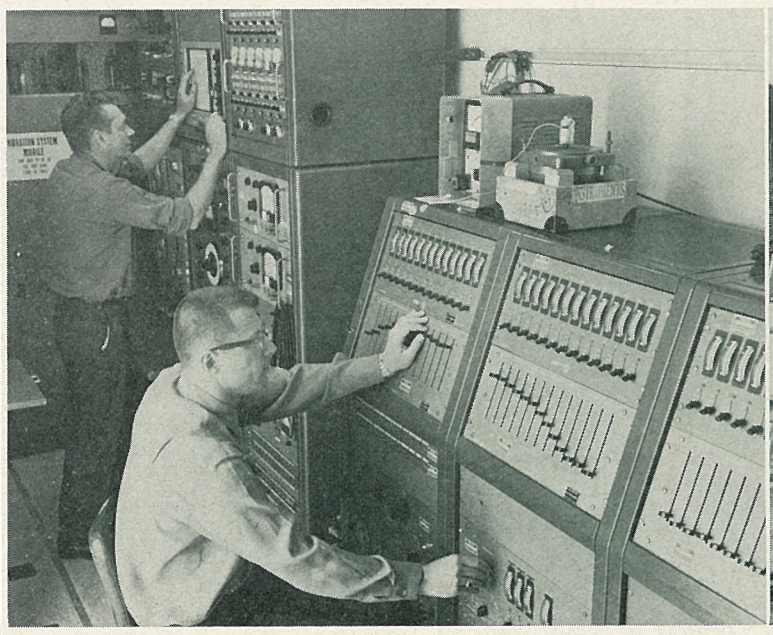
Peace said swimming courses usually run 10 sessions with life saving requiring 22 hours, skin diving 17 hours and scuba diving 32 hours.

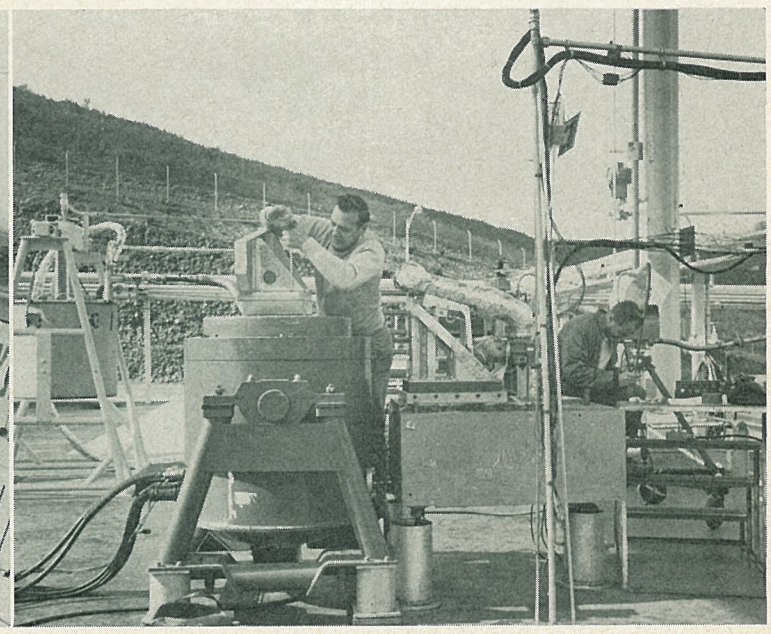
Loudermilk Named Bryant Assistant

G. M. Loudermilk assumed the post of assistant to the vice president of operations at Convair division early this month.

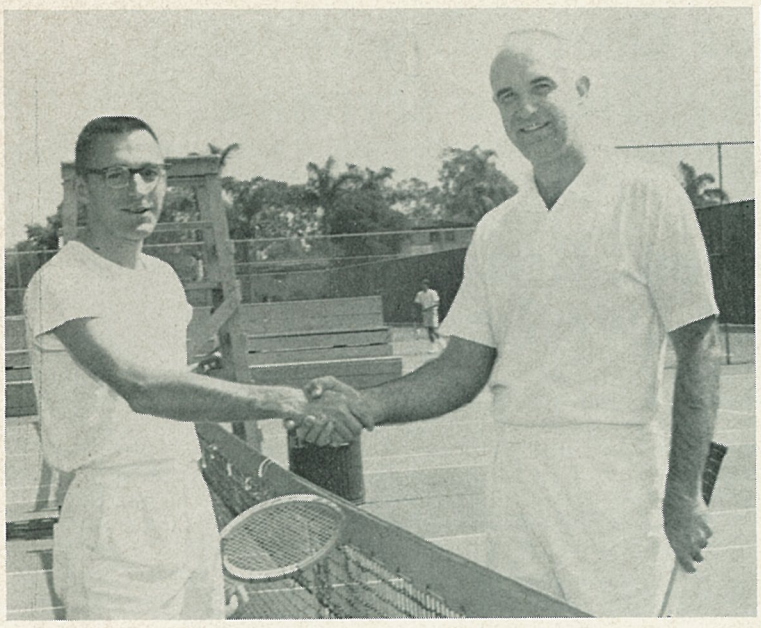
Loudermilk will assist E. D. Bryant, vice president of operations, and managers in the operations departments, with coordination and execution of current and new projects.

Responsibilities are in addition to Loudermilk's duties as administrator of the operations cost reduction and value control program.





ON WHEELS — Convair's new mobile vibration laboratory is housed in two trailers. At left, Beryl Bates operates control console and Tony Christensen adjusts equalizer-analyzer. In photo at right Robert Roark sets up design proof test of Centaur vent valve on exciter. New mobile vibration lab setup is used in liquid hydrogen tests in remote locations.



FRIENDLY RIVALS — Jack L. Bowers, Convair general manager (right), and Bob Bachman (Dept. 586-2) shake hands before singles match opening annual CRA tennis tourney March 12. Bachman eliminated Bowers in close 6-4, 7-5 match.

Tad Yamaguchi Is Tennis Winner; Tournament Draws 120 Entries

One of the largest tennis tourneys sponsored by CRA has drawn 120 individual entries for events staged throughout this month, CRA Commissioners Ray Hardy and Bob Herold report. Tourney events end this weekend.

Singles events in four categories on the opening weekend, March 12-13, saw Tad Yamaguchi defeating Dave Bennett, 6-2, 6-4, in the master's finals. Bob Bachman and John Cannau tied in the advanced first-round elimination round robin. Bachman eliminated Jack L. Bowers 6-4, 7-5 to become eligible for the next elimination round. A pro set playoff will determine the winner.

Intermediate singles finals between John Bennett and Dan Hamlin was still to be decided as of last week. In novice singles finals Tom Gaughen defeated Bill Connor, 6-3, 6-2.

Events scheduled throughout last weekend and next weekend included men's doubles in advanced, intermediate, and novice classes; ladies' singles and mixed doubles in the same categories; and a single class man and wife team event.

'Mickey Mouse' Golf Tourney Scheduled

Convair Management Club's annual "Mickey Mouse" golf tournament for members and wives has been scheduled for April 16 at Tijuana Country Club with tee times beginning at 7 a.m.

A $3 green fee will cover all costs, including beer, sandwiches, and prizes for the all-day event.

"We don't expect much good golf but we do expect a genuine grade-A ball," Terry Kell said.

About 200 players are expected. Present and former club members, wives and guests are invited. April 10 is deadline to sign up. For information, call Kell, LF ext. 605, or Al Kelly, KM ext. 3034.

Travelers Will 'Vote' On Dates For Tour

This summer's annual tour of Mexico will be set for either the latter part of June or the middle of August, depending upon the preference of General Dynamics travelers, announced Jim Hardison of Dept. 113-0, who conducts both summer and winter trips to Mexico City for GD people.

Dates can be set for either June 25-July 10 or Aug. 13-28, based on the choice of those signing.

A color slide showing of recent trips will be held the latter part of April for everyone interested.

Hardison asks for a show of hands on tour dates as soon as possible. He may be contacted at his home phone, 276-5805.

SHOW DISCOUNT NOW AVAILABLE

Discount tickets allowing a 50-cent reduction in price to Al Hirt's All-Star Show in the Civic Theatre, April 22, are available at all employe services outlets and CRA Clubhouse. Tickets may be exchanged at the Civic Theatre box office when purchasing seats, regularly priced at $5, $4, $3.50, $2.50.

Stage Struck? Then Attend Meeting

All Convair people interested in acting or working behind the scenes in dramatic productions are urged to attend a meeting this coming Monday (March 28), 7:30 p.m., in CRA Clubhouse at Kearny Mesa, to reorganize Triangle Players.

If enough interest is shown, the drama club will be reactivated and plans made for a spring play.

Riflemen Compete In NRA Shoot-Off

Convair senior and junior riflemen took five of nine awards in the NRA Registered Winter League shoot-off for small-bore .22 caliber rifles Feb. 6 at Gillespie Field.

Dave Farrelly Sr. of Dept. 572-1 took first place and Fred Berling, son of Stan Berling of Dept. 057, took third place in prone position.

Dave Farrelly Jr. and Terrance Farrelly placed first and second in the four-position junior match and Joe Kersey of Dept. 225 was second in the four-position senior match.

Dick Zeich of Convair is secretary of the NRA Winter League.

Junior Rifleers plan to enter a team in a regional .30-caliber competition this weekend at Camp Pendleton.

Both Snow and Water Skiing Occupy Club

CRA Ski Clubbers jam-packed last weekend (March 19-20) with a wide variety of activities as they ranged from the coast to the mountains to the desert for water skiing, snow skiing, golf and swimming.

In the first triple-event of the season, Convair skiers had their first water skiing session in Mission Bay waters Saturday morning before changing their gear for snow skiing over the slalom course at Snow Summit the next morning. They wound up the weekend at Palm Springs for golf and swimming.

TRAVELERS PLAN DESERT OUTING

CRA Travelers will rendezvous at the J-Bar-L Mobile Corral in Borrego Springs for a desert outing this coming weekend, March 26-27. Next business meeting of the group will be April 5, 7:30 p.m., in the CRA Clubhouse, Kearny Mesa. For information call Virg Marshall, ext. 3541 KM.

CRA Calendar

(For information on CRA activities call CRA Headquarters, Kearny Mesa, ext. 1111. Deadline for copy for the next issue of GD/NEWS is noon, March 30. Call ext. 3322, KM, or 1071, LF.)

★ ★ ★

ADVENTURERS — Car-camp outing to Punta Diggs, Baja California, April 2-3.

BADMINTON — Play Mondays, 7-10 p.m., Federal Bldg., Balboa Park.

BICYCLE CLUB — Meeting March 28, 7:30 p.m., Room C, CRA Clubhouse.

BRIDGE — Play each Friday, 7:30 p.m., CRA Clubhouse. Special Master Point night March 25, monthly Master Point night April 1.

CAMERA CLUB — Meeting April 3, 7:30 p.m., Photo Arts Bldg., Balboa Park.

CERAMICS—Instruction Tues., Wed., Thurs. evenings, 7:30-10:30 p.m.; Wed. morning, 10 a.m.-1 p.m., CRA Clubhouse.

CHESS — Play each Wednesday, 7:30 p.m., CRA Clubhouse.

DRAMA — Reorganizational meeting of Triangle Players March 28, 7:30 p.m., CRA Clubhouse.

FENCING — Workouts and instruction Fridays, 7:30-10:30 p.m., YWCA, 10th & C Sts.

ICE SKATING — GD skate night Thursdays, 6:15-7:45 p.m., Mission Valley Ice Arena.

MOVIES—Reduced-price movies at State Theater, Euclid & El Cajon Blvd. Admission: adults, $1; children, 35c.

PISTOL CLUB — Club shoot 9:15 a.m., March 27, SD Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB—Meeting April 7, 7:30 p.m., CRA Clubhouse.

SCULPTURE—Workshop sessions Mondays, 7:30-10:30 p.m., CRA Clubhouse.

SPORTS CAR CLUB—All-day trip to Briggs Cunningham Automobile Museum and Paul Mantz Museum, Costa Mesa, April 3. Meet at La Jolla junction at 8:30 a.m.

TENNIS — Final rounds in annual spring tourney March 26-27.

TOASTMASTERS — Meetings each Wednesday, 4:15 p.m., CRA Clubhouse. Call D. R. Nash, ext. 2059, or Jim DeShazo, ext. 2056, both Kearny Mesa. Dynamic Toastmasters #467 meet every Thursday, 5:15 p.m., CRA Clubhouse. Call Eric Makela, ext. 1320 KM.

TOASTMISTRESSES — Serra Mesa Toastmistresses meet first and third Mondays, 7:30 p.m., CRA Clubhouse.

TRAILERS — CRA Travelers outing to Borrego Springs March 26-27. Meeting April 5, 7:30 p.m., CRA Clubhouse.

WIVES — Joint meeting of outgoing and new executive board members April 6, 10 a.m., TV lounge, CRA Clubhouse.

Free Tickets Await Lucky in Drawing

Like to win a couple of ducats to see the San Diego Padres play in one of their home games next month?

It's easy. First of a series of CRA baseball ticket drawings will be held April 12.

To enter write your name, division, plant, department number, shift, and plant phone extension on a slip of paper. Deposit it by April 8 in one of the deposit boxes at employe services outlets at Convair plants, Stromberg-Carlson, Electronics-SD; engineering mail room, Bldg. 51, third floor, Lindbergh Field plant; with Dorothy in H. C. Medearis' office, mezz, Bldg. 3, Plant 19; or CRA Clubhouse. No entries will be accepted by mail.

Tickets in the first drawing will be for games with Indianapolis (April 15-17), Tulsa (April 19-21), Denver (April 22-24) and Oklahoma City (April 26-28).



NEW CRA SLATE — Marian Sills of Prophet Co. pours coffee for new officers of Convair Recreation Association after election at March 14 council meeting. From left, Evelyne Thrall, secretary; Marty Stutz, president; Ray Mendoza, vice president; Keith Sears, treasurer.

Marty Stutz Will Head New Officers of CRA

Marty Stutz, one of the most active recreational leaders in both Convair and former Astronautics Recreation Associations, heads officers elected to top spots in CRA Employes' Council for the 1966-67 year.

Stutz (Dept. 452-0), tooling department foreman, succeeds Gerry Wright, who held the CRA presidency for three consecutive terms.

Other officers, all well-known in CRA circles, are Ray Mendoza, vice president; Evelyne Thrall secretary; and Keith Sears, treasurer.

A General Dynamics employe since 1941, Stutz has served as square dancing commissioner since November, 1952, organizing the ARA Astro Nauts group.

He also spearheaded building of the miniature railroad in the Kearny Mesa Recreation Area.

Mendoza, now in employment section of industrial relations, directed Astronautics Recreation Association operations as employe services supervisor from 1958 until this year.

Mrs. Thrall, of Convair employe services, starts her fifth year as CRA secretary. She joined Convair in 1956 in payroll and was CRA accountant for four years.

Sears has headed astronomy groups in CRA and ARA for several years and is currently commissioner of the Junior Science Club. He first joined Convair in 1941 and has been in Convair and Astronautics industrial relations since 1951.

Installation of officers will be held at the April 11 Council meeting, J. K. Field, chief of employe services, announced.

New Commissioners Named to Council

New commissioners for two CRA activities were named this month by J. K. Field, chief of employe services and director of Convair Recreation Association.

Jerry Toyen (Dept. 532-2) assumes the reins of the Convair Sailing Club, succeeding Charles McLean, and Fred Schulz (Dept. 961-7) succeeds James Lack as commissioner of the Radio Club.

Toyen joined Convair the first of last year after receiving his MS in engineering from the University of Missouri. Schulz joined the Company in 1956 and had been with the former Astronautics division during the years since. An active member of the former ARA radio club, he holds an advanced class license, K6-VUA.

April 16 Deadline For Entering Annual Plantwide Bowl Tourney

Entries are open to all Convair bowlers for the 25th CRA annual plant-wide championship April 30-May 1 and May 6-7 at Clairemont Bowl.

Deadline for entering is April 16.

The yearly tourney, open to all Convair employes and members of their immediate families, will select champions in men's and mixed team events, men's and women's singles, men's and mixed doubles, and men and women all-events.

Handicaps will be based on 1965 book averages. If no official average is available, current highest averages of 21 games or more will be used, or an assumed average of 200 for men, 160 for women, maximum team average of 855, and maximum doubles, 370.

Five sanctioned bowlers may form a team and enter without the payment of additional membership dues as formerly required. Bowlers may enter once only in doubles and singles and mixed teams or mixed doubles will be accepted. Doubles only and singles only will not be accepted. All women's teams will compete in the mixed division.

Fees are $2.50 per person for each event entered with an optional all-events fee of $1 a person.

Team events will be both days of the opening weekend with doubles and singles competition on May 6-7.

Entry forms are available now at all plant employe services outlets, CRA Clubhouse and local bowling alleys where CRA-sponsored leagues are in action.

Tourney committee members are the three CRA bowling commissioners, Mike Brooks, Forest Erwin, and Jim Hayman, and their wives.

Delta Divers Elect McGinnis President

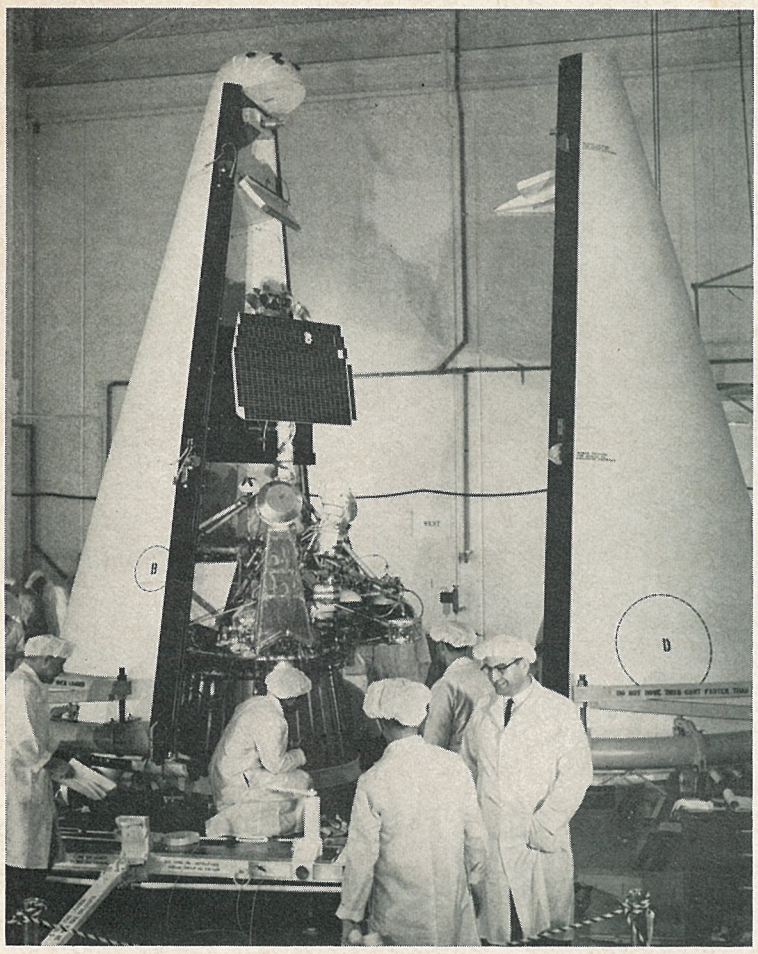
Jim McGinnis has been elected president of Delta Divers. Other officers are Rocky Eaton, vice president; George Jonilonis, secretary; Chuck Davis, treasurer.

The 1965-66 diving season closed March 15. Larry Blackburn won a trophy for catching the largest fish and largest lobster of the season.

Delta Divers' next meeting will be at 7:30 p.m. April 13 in the CRA Clubhouse.

Rosters Called For In Volleyball Play

Volleyball teams intending to participate in the IRC league are urged to turn in rosters to Pete Beyrer, mail zone 130-50, before April 1. Play will be every Wednesday in Balboa Park's Muni Gym. CRA will pay entry fees.



ENCAPSULATION — Surveyor SC-1 spacecraft, destined for landing on moon later this year, is encapsulated in nose fairing at NASA's Combined Systems Test Stand at Convair's Kearny Mesa plant before being mounted atop Centaur. Conferring in foreground are Thomas Shellum, Hughes aircraft crew chief, and M. V. Ohanesian (wearing glasses at right), Jet Propulsion Laboratory crew chief.

Acceptance Tests 'Okay' For Surveyor Program

The first full-scale Surveyor spacecraft scheduled to make a landing on the moon, and its Convair division-built launch vehicles, Atlas 290-D and Centaur 1-D, have been airlifted to Cape Kennedy following successful completion of combined acceptance tests.

Fred R. Lee Jr., chief of Combined Systems Test Stand operations, said "everyone was pleased" with acceptance tests, completed on schedule March 7 with only two short "holds" to resolve minor problems.

Convair had 90 men and Hughes Aircraft Co. and Jet Propulsion Laboratory each had 15-man crews assisting.

Officials included R. D. Ginter, Centaur project manager from NASA headquarters; J. C. Nettles, deputy manager of the Centaur project office at NASA's Lewis Research Center; Dr. R. L. Roderick and W. J. Richardson of Hughes; and R. J. Parks, K. S. Watkins and R. Crabtree of JPL. Parks is Surveyor program manager.

Recording equipment in the CSTS operations room is identical to that at Cape Kennedy and the countdown procedures used were the same that will be used for actual launch. Tests were run to coincide with an actual "launch window."

The CSTS tests create electronic simulation of almost all activity the launch vehicles will be required to perform during the moon flight except firing engines and "liftoff."

Even the umbilical cables were popped as they would be at launch.

Although the two "holds" delayed "launch" 47 minutes, the CSTS crew had a 72-minute "launch window" for the simulated liftoff.

Assistant test conductors for tests were G. G. Christ and Walter S. Becker. Paul Jackson was second shift supervisor and Robert Franklin shop supervisor.

Lead engineers were Thomas M. Sammon, mechanical systems; G. H. Owen, launch control and vehicle power; J. L. Hall, instrumentation systems; M. H. Schultz, radio frequency systems; John P. Ryan, flight control and guidance; Robert Brown, spacecraft support.

Medicare Deadline Rapidly Approaching

Retirees, employes and their dependents who are approaching age 65, or who may be age 65 or older, are reminded that time is short to sign up for Medicare. Deadline is March 31 and persons can sign up at any Social Security office.

If you were 65 before Jan. 1, 1966, you must enroll by March 31 to be covered by Medicare when it starts in July. If you do not enroll by that date, you will not have another chance to enroll until Oct. 1, 1967, and then your protection will not begin until July, 1968, and will cost more each month than if you sign now.

Dause Bibby Honored As Texas U. Alumnus

Dause L. Bibby, president of Stromberg-Carlson, has been awarded the 1966 Distinguished Achievement Award by the University of Texas alumni chapter in New York. The award is made to former University of Texas students who have achieved distinction in professional careers.

Previous recipients include Robert B. Anderson, former Secretary of the Treasury; John E. Canaday, of the New York Times; C. W. W. Cook, president of General Foods Corp.; Walter Cronkite of CBS.



IN CHARGE — Head man during "dry run" of Surveyor launch was Fred R. Lee Jr., chief of Combined Systems Test Stand at San Diego. Veteran of nine years at Sycamore Test Site, Lee is 37, a University of Nevada graduate. He has served two Navy hitches, one as an enlisted electronics technician and another as an officer.

Marine Systems Group Organized; Links EB, Quincy, Electro Dynamic

General Dynamics has formed a Marine Systems Group to respond to the expanding requirement for complete military and commercial ocean systems, Roger Lewis, General Dynamics president, announced recently.

The Marine Systems Group will be comprised of the Corporation's Electric Boat division at Groton, Conn.; the Quincy shipyard at Quincy, Mass., which is being raised to the status of a full operating division; and the Electro Dynamic division at Avenel, N.J.



C. G. Holschuh

Carl G. Holschuh, Corporate vice president has been named group vice president for Marine Systems and will direct activities of the new organization from GD's New York Headquarters.

Holschuh, former executive vice president of Sperry Rand Corp., joined General Dynamics last year **(GD/NEWS, Dec. 22, 1965)**. He has had more than 30 years of manufacturing and engineering experience, beginning with Sperry Gyroscope in 1933.

"The new grouping will enable the Corporation to concentrate its full marine design, production and management capabilities on such programs as the Fast Deployment Logistics ships currently contemplated by the U. S. Navy," Lewis said. "Additionally, we feel there are promising opportunities for wider application of the Corporation's marine capabilities in the fields of nuclear and conventionally powered surface vessels, undersea systems for exploration, mining, harvesting of food and transportation, and marine system components of all types."

Within the new group, the Electric Boat division, headed by J. William Jones, Jr., as president, will be responsible for military and commercial submarine construction, other undersea equipment and air cushion vehicles. The division's Marine Technology department, which is responsible for oceanological systems at EB, last year opened a second Marine Technology Center at San Diego, to extend availability of its research and engineering services to the West Coast.

The Quincy division, which is headed by Robert V. Laney as general manager, will be responsible within the Corporation's Marine Systems Group for surface ship construction, both naval and commercial, and production of heavy equipment and components of large systems.

GD purchased the Quincy shipyard from Bethlehem Steel Co. as a closed facility on Dec. 31, 1963. Laney, who had been assistant manager at the yard since 1959 and had served more than 20 years with the Navy and the Atomic Energy Commission, became manager when the yard was reopened by GD in January, 1964.

Within 27 months the yard has earned contracts for construction of eight Navy surface ships and has grown to more than 6,500 employes. Under contract at Quincy are two ammunition ships, a submarine tender, two fleet replenishment oilers and three dock landing ships. Quincy also is performing the ship construction portion of the General Dynamics conversion of three former Navy tankers into Apollo Instrumentation Ships.

The Electro Dynamic division will be responsible in the new Corporate grouping for production of large electric motors, generators and alternators for special applications, mechanical high-energy metalforming equipment, high efficiency fans, air purification systems and other marine components and light equipment.

The division is headed by Raymond B. Carey Jr., as president. He came to the division from Electric Boat as assistant general manager, manufacturing, and was named president in 1960.

Giant Computer Effort Involved in AIS Task

A gigantic computer programming task under way during the last year for the Apollo Instrumentation Ships central data processing system, is in final stages of completion before it is put to the test aboard the USNS Vanguard, first Apollo tracking ship.

The $1 million programming effort for the three ships has been accomplished at Electronics-SD operation with assistance from Convair. Electronics-SD operation's applied mathematics group is responsible to the Electronics AIS Program Office in Quincy, Mass., for providing real-time (information transmitted simultaneously with reception) computer programming for AIS navigation, vehicle acquisition, and tracking systems.

"Formulation of a complete computer program for the Univac 1230 military real-time computers which will be the 'brains' of the central data processing system aboard the Apollo ships has been a joint effort of Electronics and Convair engineers and programmers assigned to the task during the last year," said L. N. Lawhead, Electronics-SD manager of applied mathematics. Primary object of the computer programs is to assist radar systems to locate, lock onto, and track satellites; determine orbit; record and transmit launch and orbital data to NASA's Manned Space Center in Houston, Texas.

One of the important functions of the programming is to remove the ship's motions from the data to make the computer react as if the ship were a land tracking station. Before the mission the computer samples data from each of the ship's several navigation systems, establishing "error models" so that the best data can be used during the mission for correction of radar data to the ship's preassigned position.

"Before each Apollo mission, the ships are assigned a nominal position — one in the Atlantic Ocean, another in the Indian Ocean, and the third in the Pacific Ocean," Lawhead explained. "However, since no ship can remain immobile at sea, this exact point can not be absolutely maintained, but all orbital data sent to Houston must be converted as if it were transmitted directly from the pre-arranged position. Therefore, our computer programming must allow for variances of the ship's position, as well as pitch and angle, and correct data transmitted to NASA so that the Manned Space Center can accurately determine the space vehicle's orbit."

Input and output of the Univac computer will be transmitted to and from NASA on high and low speed data communication links, and, at the same time, recorded on magnetic tape for post-mission analysis.

R. D. Runyan, Electronics-SD operation data systems research group engineer, is in charge of AIS programs in San Diego, with S. I. Klein responsible for definition of the computer programming task accomplished by Convair programmers.

Convair engineers reporting to R. M. Leger, chief of information systems (Dept. 591-0) and 11 programmers from scientific programming analysis (Dept. 595-0), under W. J. Schart, chief, and C. H. Gutzler, supervisor of guidance and trajectory calculations, have been assigned to the effort under a work assist authorization.

Convair programmers, headed by Clair Swarner, group leader, have accomplished the complete coding and are completing the debugging for the AIS programming—translating the mathematical formulas into computer language; developing the flow charts which show how the mathematical formulations are solved within the computer. Convair engineers, reporting to Leger, developed a large portion of the necessary mathematical information, Lawhead said.

Programming "software" will be checked out aboard ship at the Quincy Shipyard during the next month of Category II testing of instrumentation systems.

Simulated data will be fed into the computer to test programs throughout a complete mission with a typical trajectory into a known orbit. During checkouts, radar systems also will track balloons, aircraft, and the Echo III satellite as it comes within range.

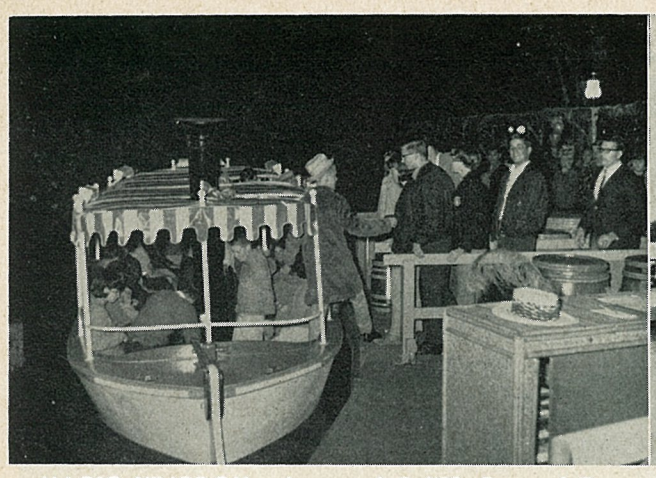
Convair programmers, Matt Chirico and Tony Chang, will be at Quincy throughout the testing period with others called upon as required.

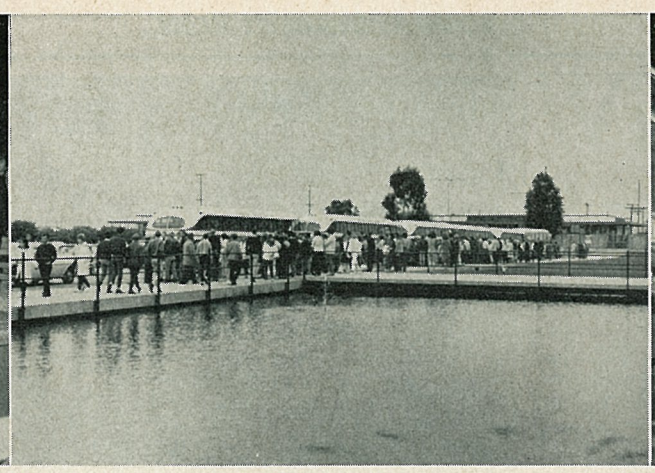
A month's course on AIS programming and how it operates was just concluded for 12 NASA and contractor personnel who will operate and maintain the data processing system on board the USNS Vanguard and Redstone. Another course will be given next month for operators assigned to the USNS Mercury. Dorothy Jirauch of Convair guidance and trajectory calculations group is instructor.

This same team of engineers and programmers are also working on an associated programming task, under an Electronics-SD operation contract from NASA's Goddard Research Center, to provide similar programming to drive display equipment for the NASA flight dynamics officers stationed aboard the tracking ships.



INSPECTING — Roger Lewis, General Dynamics president, right, J. William Jones Jr., president of Electric Boat division, center, are briefed on Apollo Instrumentation Ship Vanguard by program director Lewis Emmerich of Electronics division, prime contractor for AIS project.





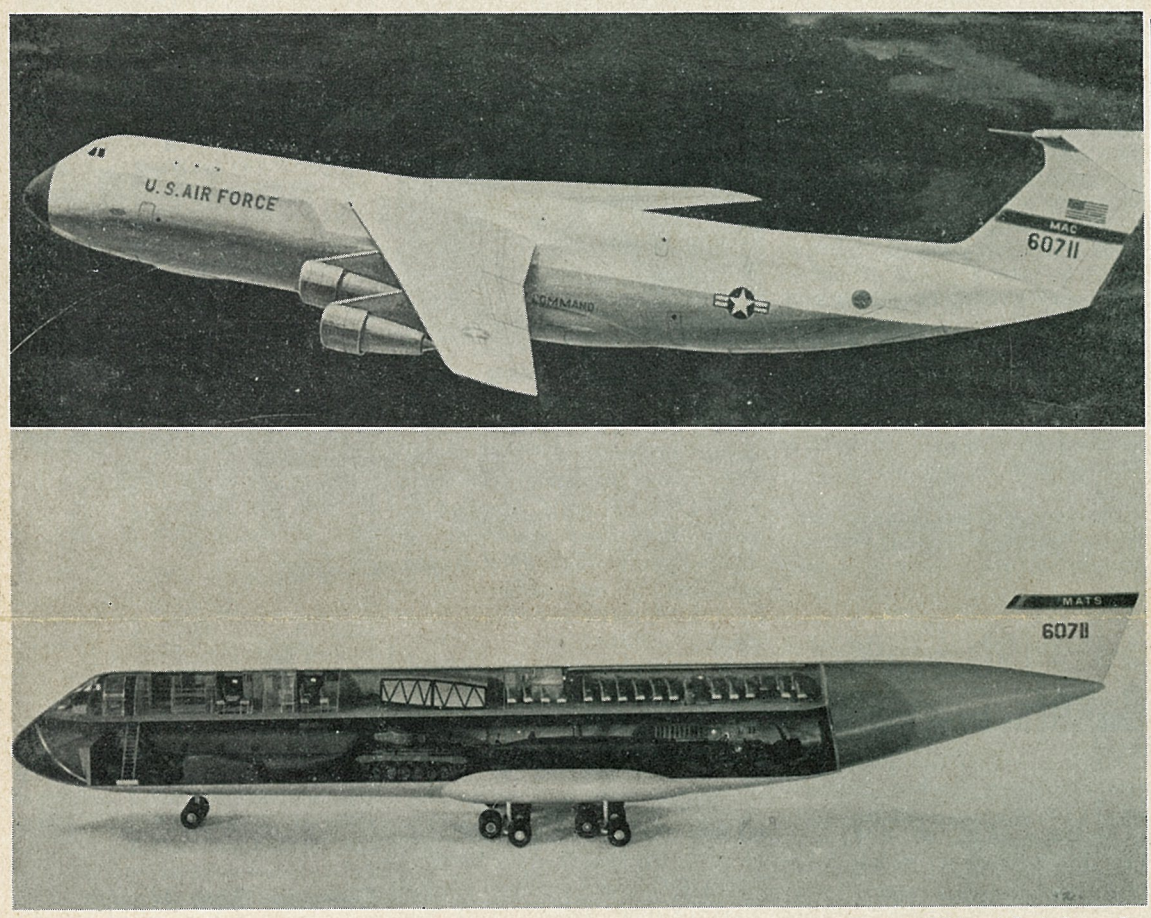


MAGIC KINGDOM—A record 9,673 General Dynamics employes and family members visited Disneyland for big five-hour family party March 26. More than 1,000 made round-trip from Kearny Mesa plant in 27 buses. Welcome sign was strung across entrance to "Main Street-USA." Story on page 2.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 19, No. 7 | PUBLISHED BY GENERAL DYNAMICS CORPORATION | Wednesday, April 6, 1966



C5A AIRFREIGHTER—Artist's drawing in upper shot envisions huge Air Force C5A airfreighter for which Convair will build empennage under recently-awarded subcontract from Lockheed-Georgia Co., Marietta, Ga., prime contractor. It will be able to transport 110,000 pounds of cargo across either Pacific or Atlantic and land on relatively unprepared fields. Abbreviated cutaway model in lower shot shows typical cargo load of helicopter, missile, tank, trucks, and jeeps on cargo deck with seats for approximately 100 persons on second deck.

Bowers Will Speak On Convair Status

General Manager Jack L. Bowers will give a progress report on the Convair division at the April 28 meeting of Convair Management Club in the Balboa Park Club.

Nominees for 1966-67 club officers will be presented and nominations accepted from the floor, said J. R. King, club president. Ballots will go to all members immediately after the April meeting and election results announced in May.

Two Uprated Versions of SLV-3 Ordered by AF Space Systems

Convair division will build two uprated versions of the reliable Atlas SLV-3 launch vehicle under contracts from the Air Force's Space Systems Division.

The SLV-3C, for use with Centaur upper stages, will have a tank 51 inches longer than that of the LV-3C. This will give it an additional 21,000 pounds of usable propellants and a longer engine burn time with a 300-pound payload capacity increase.

Current plans are for the first SLV-3C to be delivered in January, 1967, and used several months later by NASA for the Atlas-Centaur XIII flight, sending an operational Surveyor spacecraft to the moon.

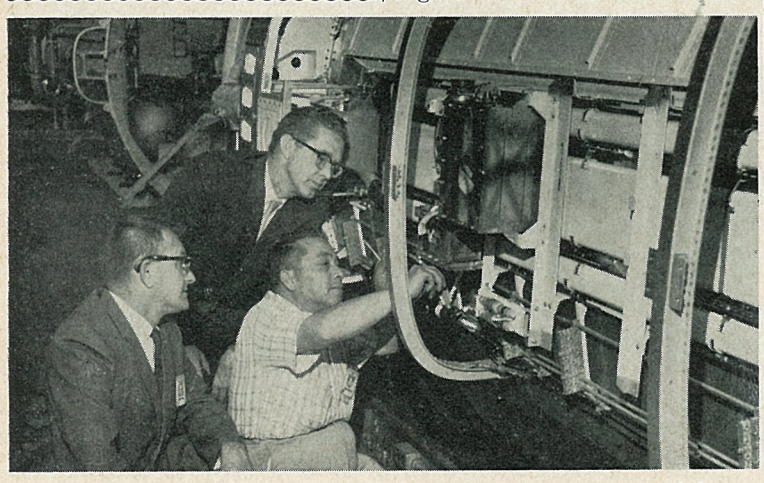
The SLV-3A for use with Agena upper stages will have a tank 117 inches longer than that of the SLV-3 for an increase of 48,000 pounds of usable propellants and a 250-pound payload increase for lunar missions. The first SLV-3A is scheduled for delivery in May, 1967.

Modification of the MA5 engine system for both new vehicles will increase booster engine thrust by 6,000 pounds to 336,000 pounds and sustainer engine thrust by 1,000 pounds to 58,000 pounds.

Both the SLV-3C and SLV-3A may use an advanced autopilot now under development by Convair that would reduce retargeting time on the pad to one hour if new target parameters are known in advance. Both will use standardized kits for varying mission requirements.

Work on the new vehicles is being carried out under the direction of R. W. Keehn, LV-3C

(Continued on Page 2)



PROTOTYPE—Frank Wozniak, left, program manager, and James Griffin, factory launch vehicle operations coordinator, watch as L. M. Hernandez, missile mechanic, adjusts B-1 pod hardware on mock-up of new SLV-3C vehicle configuration.

Hydrogen-Fueled Planes Under Study For NASA

Convair division engineers working on initial feasibility studies for hydrogen-fueled hypersonic aircraft under a $200,000 NASA contract presented information on two "most promising" designs at NASA's Mission Analysis Division headquarters at Moffett Field, Calif., last week.

Frank E. Jarlett, program manager for Dept. 581-5, said one of the configurations incorporates delta wings with a "circular body" and the other has double-delta wings blended into the body.

Convair representatives at the Moffett Field presentation and their areas of responsibility included Jarlett; C. J. Cohan, assistant program manager A. R. Perl, vehicle systems; Barry Prior, propulsion; Alfred Hucknall, structures, and Richard A. Nau, acting manager of advanced launch and re-entry systems.

The two designs undergoing detailed study were selected from a group of four in a January meeting at the Kearny Mesa plant attended by 26 NASA and Air Force representatives.

Further studies under the contract are to identify the main problem areas of the two selected configurations and define critical research areas. Richard H. Peterson from NASA headquarters in Washington is contract monitor and the contract is administered by NASA's Mission Analysis Division at Moffett Field, Calif.

"The economics of the hypersonic transport are very dependent on the cost of hydrogen fuel," Jarlett said. "We are talking about fantastic quantities of liquid hydrogen—predicting that, by 1990, 500 daily flights will need 100 million pounds of hydrogen."

Jarlett said the Convair studies to date indicate sonic booms from hypersonic aircraft, previously thought to be an insurmountable problem, can be minimized by "Coke bottling" the plane's body. He said designing the body with a "bulged nose" and "pinched-in" waist section should keep the booms below levels that will be created by the supersonic transport now in the planning stages.

"Since the HST will fly on a higher trajectory, the main boom areas will be during the first 200 and last 200 miles of flight," he said.

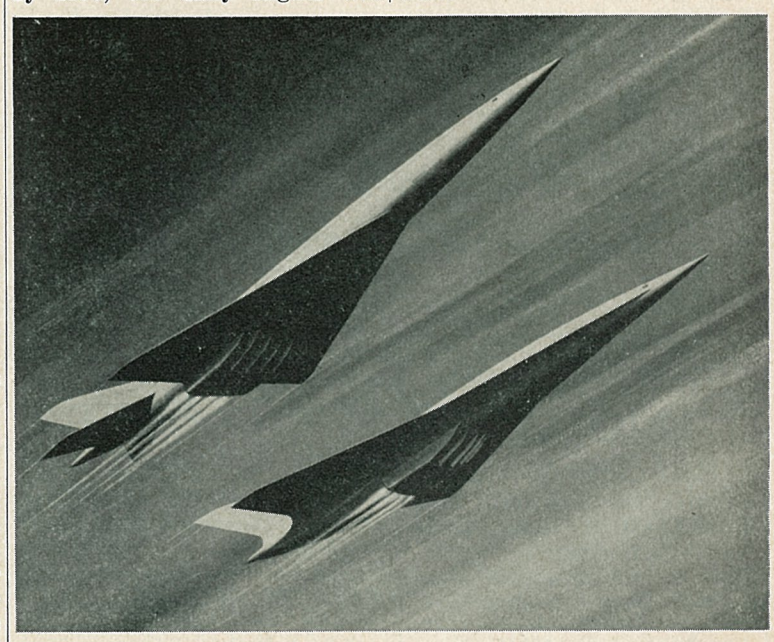
The hypersonic transport being contemplated would operate from existing airfields.

Convair's studies show maximum efficiency should result from a plane that is sized to carry 200 passengers for 5,000-nautical-mile, non-stop flights.

Projections indicate nearly half of all intercontinental air travel through the year 2,000 will continue to be from the United States to Europe.

Effects of local time on fast intercontinental travel also has been studied.

"It seems as if there will be two classes of air traveler — the east-bounder and the west-bounder," Jarlett said. "The east-bounder, always traveling east, will stand out in any crowd because he has missed his meals and his sleep. The west-bounder, on the other hand, is always gaining time and will be pink-cheeked and jovial because he gets plenty of rest and food. Conclusion: Go west!"



PLANE OF TOMORROW—Hydrogen-fueled hypersonic aircraft designs found "most promising" in Convair division studies are depicted in artist's drawing by A. A. "Tony" Adams of Dept. 126-0. Plane at top has delta wings and circular body. Lower craft has double-delta wings blended into body.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between April 1 and April 15.

Thirty-year: Dept. 715-0, G. J. Friel.

Twenty-five year: Dept. 024-0, O. D. McGraw, F. S. Rector; Dept. 401-5, O. O. Faucett; Dept. 403-2, W. Bailey Jr.; Dept. 566-1, J. A. Gesiakowski, E. A. Zivolich; Dept. 587-1, E. C. Ewert; Dept. 587-2, J. W. LeVine; Dept. 592-0, D. Krause; Dept. 819-0, C. W. Andreasen, F. L. Shuter; Dept. 836-1, C. D. Duncan; Dept. 850-0, R. H. Lange; Dept. 963-4, E. H. Davies.

Twenty-year: Dept. 041-0, W. A. Douglas; Dept. 401-4, R. Padilla; Dept. 833-2, Z. R. Reasoner; Dept. 987-0, W. R. Lucore, C. L. Markland.

Fifteen-year: Dept. 015-0, M. C. LaReau, A. D. Shaw; Dept. 051-0, D. R. Pinks; Dept. 110-0, D. H. Digges; Dept. 130-1, J. A. Birdsong; Dept. 146-1, G. C. Wininger Jr.; Dept. 250-5, V. E. Dobbs; Dept. 250-6, E. B. Medina; Dept. 400-6, H. Taddiken; Dept. 506-5, H. Q. Driscoll; Dept. 511-1, J. Strachan; Dept. 511-4, L. B. Fischer; Dept. 524-0, V. Channell; Dept. 566-2, G. J. Kincaid; Dept. 566-3, P. Stevens; Dept. 592-0, S. J. McCunney Jr.; Dept. 756-0, S. J. Elliot; Dept. 758-0, J. D. Rhoads; Dept. 780-3, H. D. Dudley; Dept. 957-0, D. L. Turner; Dept. 966-1, R. S. Wentink; Dept. 972-0, M. D. Larson; Dept. 987-0, R. U. Smith; Dept. 988-8, I. J. Fansler Jr.

Ten-year: Dept. 015-0, L. Daniels, J. W. Rea; Dept. 058-0, M. Bridger, G. S. Mathews; Dept. 101-1, A. R. Reed; Dept. 126-0, A. R. Thompson; Dept. 130-1, F. L. Aya, C. J. Colleton, H. A. Dreysse, W. E. Fowler Jr., R. B. McConnell, W. M. Smith; Dept. 142-4, B. S. Shanks, W. Winner; Dept. 143-2, E. J. Bishop, G. T. Lizon; Dept. 143-3, J. T. Bales; Dept. 143-4, L. M. Walling; Dept. 149-2, T. R. Laukemper. Dept. 191-1, G. R. Robertson; Dept. 250-5, H. F. Dombrock, K. W. Hazard, H. Medeiros.

Dept. 300-3, L. R. Woody, A. A. Ybarra; Dept. 410-0, J. C. Waters; Dept. 460-0, A. Avila Jr.; Dept. 521-6, A. J. Poe; Dept. 524-0, D. H. McCoy; Dept. 543-3, D. J. Frye; Dept. 543-5, J. L. Heming; Dept. 545-3, D. K. Smith; Dept. 550-0, A. Silverman; Dept. 565-1, J. F. Ornelas; Dept. 566-3, B. Cervantes, H. W. Eger, J. L. Gray; Dept. 572-1, J. F. Haskins; Dept. 578-1, C. A. Palosaari; Dept. 585-3, E. C. Kamps, J. D. Weber, N. L. Wener.

Dept. 731-0, C. E. Turner; Dept. 733-0, T. L. Duenez Jr.; K. Erwin; Dept. 756-0, B. E. Bates, L. B. Turner; Dept. 780-1, M. M. Jenkins, P. R. Oliver, M. Perry; Dept. 780-4, D. E. Anderson, C. L. Frees; Dept. 819-0, G. E. Ewald, M. A. Heath; Dept. 832-3, J. Garside Jr., D. L. Powell, B. J. Vukotich; Dept. 833-1, B. J. Bakkedahl; Dept. 835-2, W. S. Rees; Dept. 870-0, W. E. Moran.

Dept. 953-4, R. F. Fox; Dept. 954-1, H. E. Black; Dept. 957-0, D. H. Taber; Dept. 962-3, P. J. Miller; Dept. 967-3, R. Hertzberg; Dept. 974-4, B. F. Hawkins; Dept. 978-3, F. D. LaFalce; Dept. 984-4, J. W. Nielsen; Dept. 985-0, C. A. Johnston, E. A. Miller; Dept. 985-1, J. E. Christoff; Dept. 985-4, F. K. Rohr; Dept. 989-0, R. B. Bailey, J. W. Schofield, I. V. Steinberger.

ELECTRONICS

Fifteen-year: Dept. 1251, G. L. Cooper; Dept. 6867, M. S. Hunt.

Ten-year: Dept. 4073, B. L. Harkins; Dept. 6982, A. J. Johnson; Dept. 7083, J. L. Sinnott.

Invention Disclosures

CONVAIR

BANCROFT—G. W., Dept. 561-0 Aircraft In-Flight-Refueling, Slipway Access.

BARR—L. E., Dept. 581-1. Traffic Automatic Mishap Informing (TAMI) System.

BLAKEY—A. G. and V. S. CALDWELL, Dept. 959-0 New Design, Tube Flare Sealing Surface.

CURRIDEN—E. H. and L. PICO, Dept. 962-5. Troop Detection Device.

WOLGIN—Aaron, Dept. 592-0 A Device for Stirring Fluids in a Zero Gravity Environment.

Personals

CONVAIR

We wish to express our appreciation to our General Dynamics friends for their many acts of kindness and sympathy extended during the illness and death of Norman L. Currier. Thank you very much for your thoughtfulness.

Mrs. Norman L. Currier and sons.

* * *

Your kindness and sympathy following the death of R. J. Folstad of Dept. 987-0 are more deeply appreciated than any word of thanks can ever express.

Mrs. Eva Folstad and family.

* * *

I wish to thank my many Convair friends for their flowers, cards, and contributions at the death of our wife and mother, Marie Hale.

Lonis "Pappy" Hale and family (Dept. 041)

Retirements

CONVAIR

BUCK—Lyle E., Dept. 151-0. Seniority date March 3, 1958, retired Jan. 18.

EDWING — Alfred E., Dept. 143-3. Seniority date April 29, 1957, retired March 8.

McCUTCHAN — William F., Dept. 845-1. Seniority date Oct. 31, 1960, retired March 5.

SCHWENZFEIER — Otto K., Dept. 987-3. Seniority date Jan. 23, 1961, retired Feb. 25.

General Dynamics News

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Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

Awards

CONVAIR

Employe Suggestion awards approved for the week ending March 11.

Dept. 001, H. G. Mondy; Dept. 015, P. M. Castillo, A. Reiter; Dept. 041, G. A. Hasti; Dept. 141-2, E. M. Duke Jr.; Dept. 143-1, R. E. Hibbs; Dept. 149-2, M. E. Thomas Jr.; Dept. 193-3, M. B. Beck; Dept. 715, V. G. Harding; Dept. 763, C. W. Neal (two awards); Dept. 951-7, E. Riemer; Dept. 964-4, R. M. Mitchell; Dept. 972-0, A. J. Augustenborg, C. O. Byarly; Dept. 979-3, M. C. Roberts; Dept. 979-4, W. E. Anderson, R. E. Carter, J. A. Knight, F. G. Sturgill; Dept. 979-6, V. R. Bishop; Dept. 984-4, T. H. Chadwick; Dept. 985-1, P. R. Huitt; Dept. 988-8, E. J. Carr, I. J. Fansler; Dept. 989-0, G. F. Elwell.

Employe Suggestion awards approved for the week ending March 18.

Dept. 001, C. V. Beeson, J. W. Palmore; Dept. 019, C. F. Kahler, R. V. Lucero; Dept. 141-2, K. A. Neas; Dept. 142-1, L. E. Johnson; Dept. 143-1, T. A. Bessey; Dept. 401-7, M. P. Rebeles; 420-7, F. I. Millsap; Dept. 654-0, A. R. Horsley; Dept. 756-0, H. O. Kuntze; Dept. 759, L. O. Marine, P. P. Standley; Dept. 763, C. W. Neal; Dept. 832-3, S. A. Dietrich; Dept. 972-0, S. L. Cowley, H. J. Oakes; Dept. 974-4, R. M. Gallego, L. E. Turner.

In-Plant Training

ORIENTATION

NEW EMPLOYES—Educational services staff. Lindbergh Field, ext. 491. Bldg. 14 auditorium, Tuesday, April 19, 8:30 a.m. and 4:30 p.m. Kearny Mesa, ext. 1931, Bldg. 17, Room 3, Monday, May 2.

PROFESSIONAL/TECHNICAL

NUMERICAL CONTROL PROGRAMMING—Lindbergh Field, four hours per day, 6 weeks starting April 11. Bldg. 14, Classroom 8. Wayne Turner, LF ext. 491; Harry Miller, KM ext. 1931.

SATS-MATS WELDING—Twenty-four hours. Bldg. 2. Mats line, Lindbergh Field, Wayne Turner, ext. 491.

AIRPLANE MECHANICS (On-the-Job Training)—Eight hours per day, 26 weeks, Lindbergh Field, Bldg. 3. Coordinator, Wayne Turner, ext. 491, Lindbergh Field.

ENGINEERING HELPER TRAINING (On-the-Job)—Dave Wyche, Lindbergh Field. Eight hours per day, 20 weeks; Jan. 27-June 21; Feb. 14-July 1; March 7-July 22, Bldg. 5, Lindbergh Field plant. For information call Harry Miller, Kearny Mesa, ext. 1931; Wayne Turner, Lindbergh Field, ext. 491.

PLASTIC FABRICATION TRAINING (On-the-Job)—Lindbergh Field. Eight hours per day, 16 weeks, Jan. 20-June 10. For information call Wayne Turner, Lindbergh Field, ext. 491.

MILLING MACHINE OPERATORS (On-the-Job Training)—Eight hours per day, 26 weeks, Lindbergh Field, Bldg. 3. Coordinator, Wayne Turner, ext. 491, Lindbergh Field.

RELIABLE ELECTRICAL CONNECTIONS—Educational services staff. For information and quota call ext. 1931, Kearny Mesa. Weekly 7 a.m.-3:45 p.m., Bldg. 17, Room 10, Kearny Mesa.

Births

CONVAIR

MAYHORN—Daughter, Adele Cynthia, 7 lbs., 4 oz., born Feb. 18 to Mr. and Mrs. Willis A. Mayhorn, Dept. 454.

Deaths

CONVAIR

JONES—Evan, Dept. 113. Died March 29 after long illness. Survived by wife, Neva.

Van Horn Staff Men Appointed

Eight appointments to the staff of W. L. Van Horn, plant manager of Convair's Lindbergh Field operations, were announced last week by Jack L. Bowers, division general manager.

W. R. Bruce is manager of administration and control (Dept. 059-0); Mort Rosenbaum, manager of aircraft programs (Dept. 053-0); J. M. Adamson, manager of Lockheed subcontracts (Dept. 055-0); P. M. Prophett, manager of military requirements and service engineering (Dept. 056-0); J. B. Hurt, Convair 600 program manager (Dept. 053-4); E. H. Damarus, chief of tooling (Dept. 400-1); C. F. Blair, factory manager of Lindbergh Field fabrication and assembly (Dept. 010-0); and R. H. Gilliland, manager of Lindbergh Field reliability control (Dept. 140-0).

Annual Ball Planned For Single People

Single, divorced or widowed employes over 21 have been invited to attend the second annual Council of Clubs Ball for single people at 8 p.m. April 29 in International Room, El Cortez Hotel.

Emily Trapp of Convair's Dept. 142-0 is president of the sponsoring Council of Clubs for Single People. Tickets will be sold at the door.

HALLETT ATTENDS RESERVE COURSE

John J. Hallett of Convair Dept. 191-0 recently attended a marine terminal management course while on a two-week Navy active duty tour. He is a lieutenant in the Naval Reserve.

Club Disneyland Party Proves Smash Success

A record 9,673 employes, family members and guests spent five hours March 26 in the "Magic Kingdom" of Disneyland at the annual General Dynamics family party sponsored by Convair division's Management Club.

Although the majority were from Convair facilities, 579 attended from General Atomic, 520 from Electronics-SD, 261 from Vandenberg AFB, 150 from Edwards AFB, 86 from Liquid Carbonic and 16 from Stromberg-Carlson.

"Everyone seemed to have a great time," Robert Emerson, planning committee chairman, said. "We would like to express appreciation to all for their efforts in making it a real success."

More than 1,000 made the trip from the Kearny Mesa plant in 27 chartered buses. Attendance was 25 per cent higher than last year.

GD families poured into the entertainment center under a "welcome" sign to "Main Street—USA."

Robert King, club president, said although the party was not planned as a fund-raising venture, there apparently will be more than $1,000 profit after all charges, including parking fees, have been paid.

"The Board of Directors has made tentative plans to use any profit to take a group of underprivileged youths to Disneyland, too," he said.

"We all have a feeling of satisfaction at having sponsored a successful family party of this magnitude," King said. "We want to thank all who assisted, both at Convair and at our sister divisions."

Emerson said the planning committee learned a lot that will help streamline future large-scale parties.

S-C Mgt. Club Ballots Due

Marked ballots for election of new Stromberg-Carlson Management Club officers must be turned in by today (April 6), R. E. Mattas, club president reminds members.

Candidates for president for the 1966-67 term are R. K. Barnett and C. E. Murdock; first vice president, Glen Blackman, G. S. Elmore, and Nate Waddington; second vice president, K. R. Crowson, Robert Hayde, and Robert Smit; secretary, J. L. King, Cynthia Schick, and V. J. Stubbs; treasurer, Otto Barksdale, R. E. Dieter, and W. J. Orzechowski. Nominees for three-year board member are Roy Gilmore, Bill Knisley, and G. A. Stickney.

New officers will be introduced at the April 21 meeting and installed in May.

Man-of-the-Month honors for March went to J. A. Pascarella, foreman of Data Products mechanical assembly. Pascarella has been with Stromberg-Carlson since 1941. He was singled out for "getting the job done on the assembly line."

Mattas also named "boosters" to handle ticket sales within Data Products. Bill Hessing is booster chairman assisted by Hayde, King, Elmore, Don Jackson, and Steve Carnahan.

Toastmistress Club Schedules Speaker

Serra Mesa Toastmistress Club is inviting all Toastmistress and Toastmaster groups in the area, as well as Convair Management Club members and CRA commissioners, to hear Mary Alice Kraft, nationally registered parliamentarian, speak April 18.

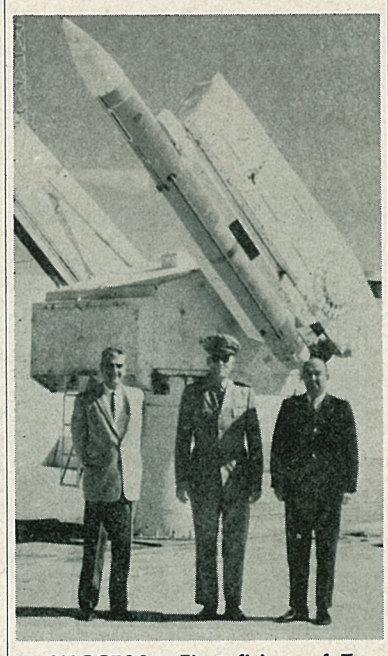
The meeting has been set for 7:30 p.m. in Bldg. 8 cafeteria at Kearny Mesa. Reservations should be made through Mary O'Shea, home phones 232-8702 or 222-6228; Barbara Mansfield, 278-6752; or Helen Maddox, 295-3362 after 5 p.m.

Tartar Scores Hit At Navy Test Range

Launch of a Navy surface-to-air Tartar guided missile last month marked the first successful firing from the "USS Desert Ship" at White Sands Missile Range, New Mexico.

Additionally, it was the first flight test for the General Dynamics designed and fabricated slip cast fuzed silica radome **(GD/NEWS, Nov. 10, 1965).**

In the firing, all test objectives of the missile and its system were met. The firing resulted in a contact hit against a jet-powered Firebee drone target. It was the successful culmination of a nine-month conversion program at the Navy's launch complex.



SUCCESS—First firing of Tartar missile from Navy's new test facility at White Sands Missile Range (nicknamed "USS Desert Ship") was successful. On hand were O. A. Roberts, Pomona division field test supervisor at White Sands; LCdr. Paul Anderson, facility test officer; K. R. French of division Terrier/Tartar program office.

Last summer the Bureau of Naval Weapons decided to consolidate all Navy surface-to-air missile flight tests at the White Sands Missile Range.

Conversion of the fire control system for the missile was accomplished through the cooperation of the Physical Science Laboratory at New Mexico State University and the Applied Physics Laboratory of Johns Hopkins University.

Future firings at the White Sands missile testing center will include shots of Terrier, Tartar and Standard missiles. They will include development tests of prototype missiles and engineering evaluation tests.

Tartar and Terrier missiles produced for the Navy by Pomona division are now employed on 59 U.S. warships.

Uprated Versions Of SLV-3 Ordered

(Continued from Page 1)

manager, with Frank B. Wozniak as program manager for both.

Atlas 144-D, an old Project Mercury-type vehicle that had been in storage at Air Force Plant 19, is being used in the Kearny Mesa factory for complete mock-up of the SLV-3A.

Wozniak said ¼-inch aluminum plating is being attached to Atlas 144-D's "skin" with prototype electrical harness and other hardware being attached for engineering proofing and checkout. James Griffin of launch vehicle operations is coordinating mock-up work in the factory.

SLV-3C and Centaur will be capable of sending a 2,900-pound payload to escape velocity or a 2,200-pound payload to Venus or Mars from Kennedy Space Center.

SLV-3A and Agena will be able to inject a 7,950-pound payload into a 100-nautical-mile orbit.

TANK MODIFICATION WORK WILL START IN TASK FOR SAAMA

Convair division has received go ahead from the Air Force to begin production of modification kits for F-102 external fuel tanks.

Initial funding is in the amount of $1,436,698 with the total contract expected to run to between $2 and $3 million. The award was made by San Antonio Air Materiel Area, Kelly AFB, Tex.

Convair will provide kits which will include pylons, supporting hardware to connect the pylons to the tanks and wing structures, in addition to the spares and documentation.

Work under the production order will run into early 1968 with first deliveries due in July of this year.

The improved pylon design includes the standard Air Force Aero-7A rack which allows ejection of the fuel tank only. The original system ejected pylon and tank simultaneously.

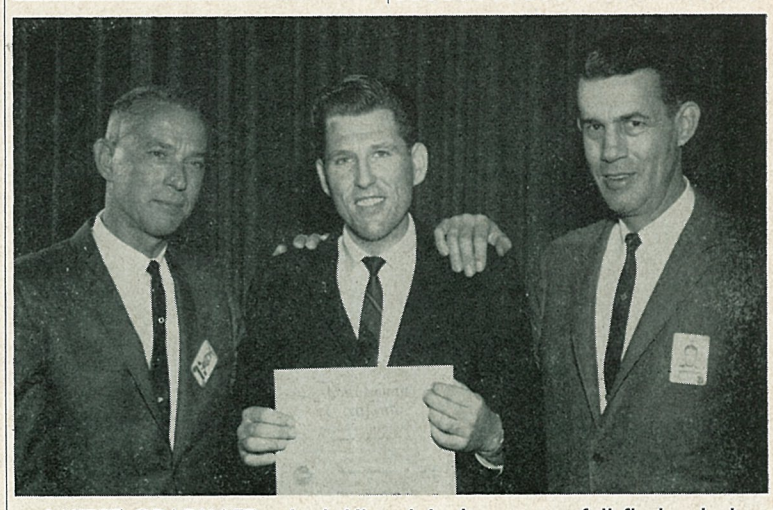
Convair designed and built the entire pylon prototype and proofed flight test kits at Kelly AFB just before the end of last year under an AF engineering services and support contract.

Convair Son Heads Minn. U. Golf Team

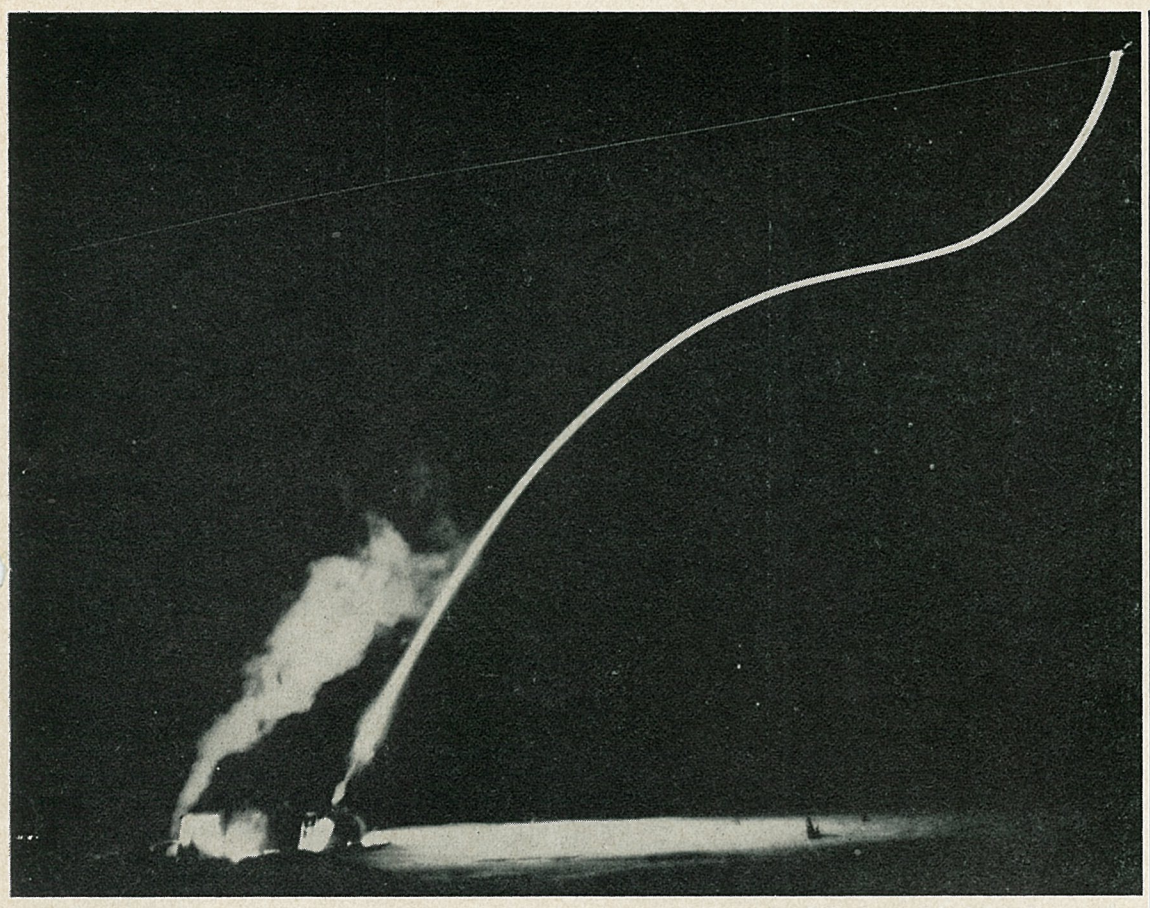
A Convair son, Bill Brask Jr., whose father works in Convair Dept. 572-3, has been tapped for the No. 1 spot on the University of Minnesota golf team this year.

Young Brask, 19, now a sophomore at the University, is a former San Diego city and county junior golf champ and SD county "Golfer of the Year" for 1963. He was runner-up in the 1964 Southern California Junior championships. A graduate of Clairemont High School, he is attending Minnesota U. on a golf scholarship.

Correct mail zone number speeds up delivery.



LATEST GRADUATE—Jack Hirtzel Jr. became a full-fledged electronics journeyman March 14 after completing Convair's four-year apprenticeship program. At graduation were, left, Paul Veal, manager of industrial relations at Lindbergh Field plant; right, Dean Whitney of the structural test facility.



NIGHT STRIKE—Twin streaks dramatically show Army's Redeye air defense guided missile scoring hit on target drone. Time exposure was taken during recently completed Arctic field test on Redeye system. Light streak at top is drone as it crossed (left to right). Missile carried telemeter package, which accounts for no explosion. (U.S. Army Photo.)

Continuing F-111 Growth Potential Predicted by Maj. Gen. Zoeckler

Despite many improvements made to the F-111 during its initial development phase, the airplane's growth potential "has not been fully exploited."

So said Maj. Gen. John L. Zoeckler, deputy for F-111, Aeronautical Systems Division, at the Air Force Association Convention in Dallas March 23.

"Advanced avionics and engines with improved thrust and fuel consumption are strong contenders as near-term improvements," Gen. Zoeckler said. "Provisions are available for improved weapons and greater all-weather equipment capabilities.

"Changes already made or in the process give us confidence that we will meet the joint service requirements," the general said. "Cooperation between the military services, NASA, the engine manufacturer and the airplane contractor has identified changes necessary to achieve required airframe engine improvements, many of which are already incorporated and have permitted expansion of the entire flight envelope."

The "encouraging" F-111 status report doesn't mean that problems don't exist or won't occur in subsequent phases of testing, the general concluded.

"But," he added, "it does indicate that we can devote our maximum attention to improvement in engine thrust, reductions in aircraft drag, improvements in engine-airplane matching, and the design changes required to provide variants of the F-111 to the United Kingdom and Strategic Air Command."

He said other applications for the F-111 design are being considered.

"An air defense version is being seriously studied," he commented. "Both the Navy and Air Force show requirement for reconnaissance versions, which may well be satisfied by this most versatile and flexible aircraft; and other Free World nations have expressed interest."

Many individual requirements have been met, he said, despite the F-111 having completed only about one-third of initial testing. These include:

Speeds beyond Mach 2.3 and altitudes above 59,000 feet.

Mach 1.1 plus at extremely low levels.

Unrefueled range (indicated) exceeds requirements by at least 10 per cent.

Repeated short takeoff and landing demonstrations, assuring short-field operations.

Loading and vibration testing with as many as 26 750-lb. bombs aboard.

As many as 50 such bombs incorporated in the design for the FB-111, but as yet untested.

Accommodation by the F-111A of more than 100 varieties of weapons.

Demonstrated accuracy of the navigation system over more than 50 varied flight profiles, at least 50 per cent better than specification.

Automatic terrain-following, radar, and lead-computing optical-sight systems meet or exceed requirements. Accurate delivery of weapons appears assured.

Turnaround of a single airplane two and three times in a single day, indicating that reliability, ease of maintenance, and availability of supply support are in "good shape."

"What appeared to be our most difficult problem has turned out to be our most obvious success," he said of the variable-sweep wing. "The wings are swept as routine on all flights."

Canadair 'Water Bomber' Model Shows Stability in Towing Basin

Last in a series of towing basin tests to establish hydrodynamics configuration of Canadair's CL-215 "water bomber" ended late last month at the General Dynamics basin in San Diego, now under cognizance of Marine Technology Center.

The new seaplane is being developed at Canadair as a fire fighter under funding by the Company, Canadian government and Quebec province.

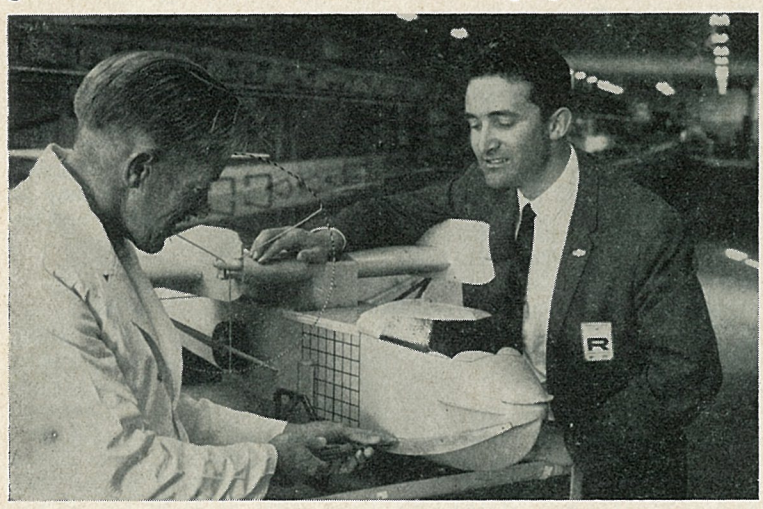
Detailed structural design is now under way incorporating results of hydrodynamic testing begun last May.

The craft is said to be the only flying boat developed specifically as a fire fighter, although it is designed for dual use as a utility transport aircraft. First flight is scheduled for July, 1967. So far, orders have been placed by Quebec province and the French government.

In its role as fire fighter, the CL-215 is equipped with two 600-gallon water tanks which can be refilled in 12 seconds through an extendable water scoop as the plane skims across a body of water at 70 knots, just below flying speed. The 12,000 lbs. of water is dropped in a solid mass from bomb doors underneath the plane with the total drop clearing the plane in approximately a second. The plane has the capability of dropping 170 tons of water during an average 4½-hr. fire-fighting mission.

Wally Remington, aerodynamicist in preliminary design, directed the towing basin test program for Canadair. Alan Conolly acted as hydrodynamics project engineer for Marine Technology Center at the towing basin which is under direction of W. B. Barkley, Marine Technology Center engineering supervisor.

George Turek, Canadair section chief for aerodynamics and thermodynamics, was in San Diego the middle of March to keep abreast of progress of tests.



CANADAIR MODEL—Alan Conolly (left) of Marine Technology Center adjusts model of Canadair's new CL-215 seaplane during hydrodynamic testing in towing basin at San Diego. Wally Remington, Canadair aerodynamicist (at right), directed tests for Canadair.

Withholding Tax Rate to Change

Slightly more withholding tax—depending on how much you make—will be taken out of your pay check starting May 6.

Under the new tax adjustment act of 1966—efective May 1—the flat withholding rate of 14 per cent will be replaced by graduated rates ranging from 14 to 30 per cent.

"The amount of 1966 income tax hasn't been increased," said James Terrien, payroll supervisor. "The new rule simply tries to put withholding on a more realistic, pay-as-you-go basis."

How much will be taken out of your check? It depends on how much you make and how many dependents you claim.

The computations are based on new withholding tables. Under the new setup, figure $13.50 for each dependent, or exemption, on a weekly basis, and $26.90 for each dependent on a bi-weekly basis.

For example, an "average" hourly employe earning a gross (before deductions) of $150 a week and claiming four dependents, would find his weekly withholding increased only 11 cents—from $13.72 to 13.83.

A salaried employe with four exemptions grossing $500 every two weeks, would find his withholdings increased from $55.44 to $63.38—an additional $7.94.

For the salaried employe, four exemptions would total $107.60. This amount is subtracted from gross salary, leaving "taxable" income of $392.

The $392 puts you in the "$338 to $681" bracket on your chart, where withholding tax is $52.50, plus 20 per cent of the excess over $338—or $10.88. Total withholding — $52.50 plus $10.88 — comes to $63.38 a pay period.

You can compute your own withholdings similarly.

All Must Sign New Withholding Form

All employes must sign and return to payroll a new form W-4 (withholding exemption certificate) by April 22.

The new form will be issued to all employes April 11.

"It's absolutely necessary that each employe sign the form and return it to payroll by April 22," said James Terrien, payroll supervisor.

"Married persons who fail to turn in the new form by deadline will be charged at the single person's higher withholding rate."

Persons on vacation or away from the plant for other reasons must also have their W-4 form returned by April 22, Terrien emphasized.

TABLE 1 (weekly payroll period).

(A) SINGLE PERSON.

If the amount of wages after exemptions is:

Over	But not over	Tax to be withheld shall be:
$ 4	$ 13	14 pct. of all over $ 4
$ 13	$ 23	$ 1.26, plus 15 pct. of all over $ 13
$ 23	$ 85	$ 2.76, plus 17 pct. of all over $ 23
$ 85	$169	$13.30, plus 20 pct. of all over $ 85
$169	$212	$30.10, plus 25 pct. of all over $169
$212		$40.85, plus 30 pct. of all over $212

(B) MARRIED PERSON.

If the amount of wages after exemptions is:

Over	But not over	Tax to be withheld shall be:
$ 4	$ 23	14 pct. of all over $ 4
$ 23	$ 85	$ 2.66, plus 15 pct. of all over $ 23
$ 85	$169	$11.96, plus 17 pct. of all over $ 85
$169	$340	$26.24, plus 20 pct. of all over $169
$340	$423	$60.44, plus 25 pct. of all over $340
$423		$81.19, plus 30 pct. of all over $423

TABLE 2 (Bi-Weekly Payroll Period)

(A) SINGLE PERSON.

If the amount of wages after exemptions is:

Over	But not over	Tax to be withheld shall be:
$ 8	$ 27	14 pct. of all over $ 8
$ 27	$ 46	$ 2.66, plus 15 pct. of all over $ 27
$ 46	$169	$ 5.51, plus 17 pct. of all over $ 46
$169	$338	$26.42, plus 20 pct. of all over $169
$338	$423	$60.22, plus 25 pct. of all over $338
$423		$81.47 plus 30 pct. of all over $423

(B) MARRIED PERSON.

If the amount of wages after exemptions is:

Over	But not over	Tax to be withheld shall be:
$ 8	$ 46	14 pct. of all over $ 8
$ 46	$169	$ 5.32, plus 15 pct. of all over $ 46
$169	$338	$23.77, plus 17 pct. of all over $169
$338	$681	$52.50, plus 20 pct. of all over $338
$681	$846	$121.10, plus 25 pct. of all over $681
$846		$162.35, plus 30 pct. of all over $846

People Mobility

Interdivisional Transfers

Capt. Sydney S. Shelby USN (ret.) has joined the staff of E. H. Heinemann, Corporate vice president-engineering and program development. An Annapolis graduate with M.S. from M.I.T., he retired from the Navy in 1958 and joined Hiller Aircraft as a vice president, later becoming director of engineering and research for Curtiss division of Curtiss Wright Corp.

* * *

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the Company.)

JAN BALYOZ (1960) from Stromberg-Carlson, Rochester to Electronics, Rochester; **WARREN A. GREEN** (1958) from Convair division to General Atomic; **GEORGE MACFARLANE** (1946) from Canadair to Electronics, Rochester; **DONALD W. KETCHEN JR.** (1959) from Convair to General Atomic; **ROBERT D. MELLOR** (1958) from Fort Worth division to Electronics, Rochester; **EDWARD V. RUSSELL** (1951) from Convair to Canadair; **CHARLES R. FISHER JR.** (1947) from Stromberg-Carlson, Rochester to manager of engineering, Stromberg-Carlson Data Products, San Diego; **RICHARD B. CRAIG** (1948) from Pomona division to director of industrial relations, Stromberg-Carlson, Telecommunications Group, Rochester; **DARWIN D. RABE** (1955) from Convair to Pomona (Sycamore).

BILL D. TEAGUE (1950) from Corporate Headquarters, New York, to compensation and personnel services manager, Stromberg-Carlson, Rochester; **K. BOYD WINWARD** (1962) from Stromberg-Carlson, Rochester, to Electronics division (Dynatronics), Orlando, Fla.



TOP TEAM—First six-time winner of Craftsmanship honors is material control section (Dept. 985) at Western Test Range.

First Six-Time Craftsmanship Winner Earns Laurels at WTR

Dept. 985's material control section at the Western Test Range in February became the first Convair division section to score its sixth Craftsmanship win since the competition began in 1964.

Donald Fagan, WTR manager, presented a new WTR Craftsmanship trophy to Carey Wirt, supervisor, in ceremonies last month. Each member of the section will receive a personal letter of commendation from Jack L. Bowers, division general manager.

Material control topped other WTR sections with a 116.2 quality index, based on a formula under which any tabulations above 100 indicates improvement. The February win was its second consecutive victory. It won three times in 1964 and once in 1965.

"'Do Good Work' has become a watchword for us at WTR," Fagan said. "We are very proud of our material control group."

The WTR trophy will be presented each month to the winning group. At the end of the year, the name of the group that has held it most will be engraved at the top. It will be displayed permanently with other WTR trophies in the lobby of MAB-5 headquarters.

In February competition among Dept. 979 sections at the Eastern Test Range, Complex 14 recorded its fifth Craftsmanship win with a 124.8 quality index. Each employe will receive a silver Craftsmanship pin and a personal letter from Bowers.

At Kearny Mesa Dept. 733-15, electric bench harness area, topped all other departments with a 110.8 quality index. Each of its employes will receive a congratulatory letter.

Lindbergh Field's Dept. 002, processing, recorded its third win since it entered the competition last February. Quality index was 112.3. It previously won top honors in March and April last year. Each of its employes will receive a Craftsmanship lapel pin and a letter of commendation from Bowers.

During February, 21 of the 39 division units entered in the competition had improved quality records and two others maintained previously recorded levels of good work with 100.0 quality indexes.

$8,000 Earmarked For Con-Trib Gifts

Convair Employes' Con-Trib-Club Committee at its March 17 meeting allocated $8,000 to three San Diego County organizations.

The Boy Scouts of America will receive $5,000, with $3,000 earmarked for purchase of a new multilith machine. The San Diego County Citizens' Scholarship Foundation will receive $2,000 and the San Diego Symphony Orchestra Association $1,000 for its youth concert program.

Mary Martin, Con-Trib secretary, reported that 16 Convair families had received Emergency Aid from Con-Trib since the first of the year. There are 14 other "open" cases either under investigation or receiving help.

Road Runners Plan Barrett Lake Trip

CRA Road Runners will make final plans for their April outing at an April 21 business meeting in Gillespie Field Clubhouse.

They will have an overnight campout at Barrett Lake Trailer Park April 22-24. All trailer and camper owners are welcome to join. Contact Bob Browning, ext. 1584 LF, or Ralph East, ext. 1294 LF, for information.

Last month's trip took nine trailers to Martin's Trailer Park in Anza-Borrego desert the weekend of March 18-20. Trail bike excursions and a hike to Sandstone Cave Canyon filled the weekend. Supper was prepared by May French, Boots Lathrum, and Regina Wawrzynski.

Tee Times Assigned For 'Mickey Mouse'

Management Club members are asked to sign up this week for starting times for the fifth annual "Mickey Mouse" golf tournament April 16 at Tijuana Country Club.

Tee times are being assigned by Helen Cook, KM ext. 3146, and Terry Kell, LF ext. 605.

Greens fee is $4 and will cover cost of refreshments.

CRA BIKE CLUB PLANNING TOUR

CRA Bicycle Club will tour Frontier Town at Big Oak Ranch this Saturday (April 9). Members will leave at 9 a.m. from the Bank of America parking lot, 9710 Campo Road, Spring Valley. Discount tickets to Frontier Town are available at employe services. Cy Campbell is trip leader.

Friday To Be Deadline For Baseball Drawing

General Dynamics ball fans have until this Friday (April 8) to get their names in the hat for a chance at free tickets to one of the Padres' home games this month.

Entries must include name, division, plant, department number, shift, plant phone extension.

They may be deposited this week in boxes at Convair, S-C, or Electronics employe services; LF enginering mail room, third floor, Bldg. 51; H. C. Medearis' office, Bldg. 3 mezz, Plant 19, or CRA Clubhouse.

TICKETS ON SALE TO "SINGING NUN"

Choice seat tickets are available at reduced price for the Cinema Grossmont, 7:30 p.m., April 15 showing of "The Singing Nun," starring Debbie Reynolds. Loge seat $2 tickets are on sale for $1.25 at employe services at Kearny Mesa and Lindbergh Field, CRA Clubhouse, engineering mail room, Bldg. 51, LF, Stromberg-Carlson and Electronics employe services. Last day for purchase is April 14.

AMBASSADOR VISITS

Olavi Munkki, U.S. ambassador from Finland, was briefed on General Dynamics organization and products and toured Convair division's Kearny Mesa plant yesterday (April 5).

Sam Special Takes Leadership of Club

Newly-elected officers of the Convair Riding Club were installed preceding the monthly fun show at CRA horse ring.

Sam Special, president-elect, was introduced by Conrad Nash, outgoing president. Other officers chosen at the March 9 election were Boyd Spencely, vice president; Marion Underwood, treasurer; and Bob Underwood, secretary.

Over 200 spectators packed the grandstand to watch the all-day gymkhana and equitation event. Special attraction during the lunch break was a "Batman" drill on horseback by girls of the Convair color guard.

Judging events was Bob Riding of Convair, Morgan horse breeder and trainer. Clyde Donahoo filled in as show manager.

Next CRA horse show will be April 17. Regular business meeting is Wednesday, April 13.

Trophies Awarded For Women's Golf

Arlene Nelson and Clara Granat were CRA trophy winners in GD Women's Golf Club play March 12 at Singing Hills. Arlene topped Flight A and Clara held low net in Flight B.

Winners of gift certificates were Jean Mishall and Margaret Clark in Flight A division and Ann Gagnon and Nell Bartlett, Flight B.

Next match will be this coming Saturday, April 9, at Tecolote Canyon. Players will be limited to four clubs. Tee-off time is 8 a.m.

Club members also have been invited to participate in the Management Club's annual "Mickey Mouse" tournament April 16 at Tijuana CC. Call Margaret Clark, club president, ext. 1286, LF, or home phone, 222-9340.

Engineering Records On Planes Relocated

Convair modification engineering is now located in the former reproduction area on the mezzanine of Bldg. 5 at Lindbergh Field plant. The function was moved from third floor of Bldg. 51 last month.

Now all engineering data and records on Convair commercial and military planes from the beginning of the Convair-Liner program to the present are consolidated. Plant phone extension remains 1570.

There is a constant demand for data on Convair aircraft, James L. Harter, who is responsible for the voluminous files, said.

Vitamins on Sale At Key Outlets

Hightower vitamin products are now on sale at Convair employe services at Kearny Mesa and Lindbergh Field.

They include: Multi-Vitamins and Minerals, 60 tablets, $1; Super-Vitamins and Minerals, 120, $3; B Complex, 100, $1; Boys and Girls Edible Vitamins and Minerals, 30, $1; High VC (lemon flavor), 100, $1.40; Digestive Enzymes, 50, $1.75.

They also are available at KM and LF cafeterias and canteens during lunch periods.

Wax Museum Cards Good For Discount

New 1966 Studio Club membership cards for the Movieland Wax Museum and Palace of Living Art in Buena Park are available to General Dynamics families at employe services outlets.

One card will provide a 25 per cent reduction in admission fees for all members of the family.

SCHIRRA BRIEFED

Astronaut Walter Schirra visited Convair's Kearny Mesa plant March 20 for a briefing and tour of the life sciences area and to see division's "six-degrees-of-freedom" simulator in use.

REINS Radar Parts Contract Continued

Electronics-San Diego operation has been awarded a $1,594,826 contract from the Navy Aviation Supply Office, Philadelphia, Pa., to continue production of REINS radar spare parts.

The San Diego-based operation developed the advanced radar system as a sub-system of REINS (Radar-Equipped Inertial Navigation System) for the A3J Navy carrier-based aircraft under a series of contracts from North American Aviation's Autonetics Division. First system was delivered and checked out in late 1962.

Wife Edges Husband To Win Card Series

Mitzi Rustad edged out her husband, Commissioner Bob Rustad, to win the Convair Bridge Club winter series. They clinched first and second place positions with a big East-West win in the final game of the series March 18. Jim Stephenson of NASA placed third.

North-South winners March 18 were David and Sophie Krause. Vi and Charlie Thomas took North-South and Elly Brittean and Walter Emmert East-West March 11.

A new spring series will begin Friday (April 8) and run through June.

Two master point championship events were held last month. Mari Max Hoffman and Ceil McCullough won North-South March 4 and Jim Dunning and Mary McGee paced East-West. Clayton Lang and Robert Jenkins took East-West March 25 and Tony Miller, club president, and his wife, Jo, North-South.

Youthful Scientists Speak at Clubhouse

Young scientists, winners in nationwide contests, described experiences to their fellow science students at last Friday's meeting of the Convair Junior Science Club in the CRA Clubhouse.

Elizabeth Saarni, a winner in the recent Westinghouse Science Talent Search, and James Williams, winner of the Veterans of Foreign Wars speech contest, talked on their trips to Washington, D. C. Lonnie Terry and Elin Hansen also spoke.

All have been regular attendees at the CRA-sponsored science workshop established for the encouragement of young people interested in any field of science.

Lectures Scheduled In Exec. Dining Room

Management Club members have been invited to lectures by Robert Pierce, human relations and communications instructor from Grossmont Adult School, from 4:45 to 5:45 p.m. next Tuesday, Wednesday and Thursday (April 12-14) in the Kearny Mesa executive dining room.

The lectures will be on "Creative thinking," "General semantics" and "Sensitivity." Robert Williams is club education committee chairman.

Coineers Banquet, Install Officers

About 50 Coineers attended an installation banquet March 19 at Bahia Motor Hotel on Mission Bay.

Steve Ames was seated as new president; F. B. Wagner, vice president; E. C. Jankowski, secretary; and J. C. Watt, treasurer. Joe Garside acted as master of ceremonies and Paul Hamm spoke.

BALL MANAGERS SLATE MEETINGS

Managers meetings for plant slow-pitch and fast-pitch softball leagues have been set for April 13 and 27, 7:30 p.m., in the CRA Clubhouse's TV lounge. Eligibility of players will be ruled on April 13. Absolute deadline for submitting rosters is April 27.

TEL-4 Project Nearing Close

Convair division is winding up a three-year project as integrating contractor for TEL-4, the new Merritt Island central telemetry station for the Air Force's Eastern Test Range.

The division has designed, fabricated, installed and checked out remote-control patching and status display equipment and integrated more than 350 racks of government-furnished equipment at TEL-4 under $4.5 million subcontracts from the Guided Missiles Range Division of Pan American World Airways. Pan Am is prime contractor for operation and maintenance of ETR's Cape Kennedy and down-range stations.

W. T. Dorrance, Convair director of special projects, said about 90 division personnel were assigned during peak periods and 50 in recent weeks for work at the site.

Dorrance said about 20 employes will remain at the site until June preparing manuals, and training Pan Am and RCA personnel.

TEL-4's 25,000-square-foot telemetry station houses video, digital, analog, and data interpolation filter data channels with more than 500,000 remote-controlled switching points.

D. N. Kahler has been project manager since 1964 with C. J. Dutton as deputy project manager for contracts and administration and R. B. Thompson as deputy project manager for operations. R. R. Lyman has been quality control supervisor; P. L. Dudney, operations supervisor; L. R. McClain, technical and training group engineer.

MGT. CLUB SCHOLAR TO CONTINUE STUDY

Robert Van Kemper, 20, son of Ivan Kemper, manager of operations at Stromberg-Carlson Data Products, has been awarded three scholarships to continue graduate work in anthropology.

Kemper, who will receive his bachelor's degree from the Riverside campus of University of California this June, holds the Convair Management Club scholarship awarded in 1962. He has been on the dean's honor list all of his four years in college with a grade average of over 3.8 the last two years.

He plans to continue his college work at the University of California at Berkeley.

Clubs Will Combine For Mexico Jaunt

Convair's Adventurers and Rockhounds are planning a joint trip to Los Gavilanes, Baja California, about 72 miles from Tecate, April 16 and 17.

Travelers will rendezvous at 8 a.m. April 16 at the Tecate city square and form a caravan. Hayden La Nois of Dept. 962-3 and Jesus Ramirez will be guides.

Further information can be obtained by calling Chuck Purdy, 279-1168.

Golfers Signing up For IRC Match Play

Convair golfers may sign now for the annual IRC match play tournament set for the weekends of April 30-May 1, May 7-8 over Torrey Pines and Balboa courses. Entry fee is $3.50. Deadline is April 18.

CRA Golf Commissioner Ken Wulfemeyer at Kearny Mesa employe services, ext. 2657, may be contacted for information and entry forms.

DISCOUNT OFFERED ON 'DOCTOR ZHIVAGO'

"Doctor Zhivago," prize-winning motion picture, may be viewed by General Dynamics people at reduced prices May 1 at Cinerama Theatre, University at 58th. Two hundred of the best seats in the house will be sold on a first-come basis at $1.90 for regular $2.25 seats. Tickets will be on sale until April 25 at CRA Clubhouse and plant employe services outlets.





ACTIVE WIVES—Upper photo: newly-elected officers of Convair Wives' Club to be installed this month are (from left) Edna Erwin, president; Frances Brooks, first vice president; Vera Whitbey, second vice president; Flora Loftin, secretary. Sue Cavanagh, treasurer, was not present. Below: club members honored for time devoted to club activities are, front row from left, Helen Ramberg; Jeanne Beatty, outgoing president; Margaret Brock, "Woman of Year"; Flora Loftin; Nadia McIntyre. Back row, from left, Lou Nordeck, Diana Umberger, Jeanne Jones, Vera Whitbey. Kay Schroeder was not present.

Edna Erwin Elected President Of Convair Wives For Year

Edna Erwin will head the Convair Wives' Club as president during the coming club year.

Other officers chosen at the March 16 election and seated this month are Frances Brooks, first vice president; Vera Whitbey, second vice president; Flora Loftin, secretary; and Sue Cavanagh, treasurer. Both Mrs. Loftin and Mrs. Cavanagh were re-elected for second terms.

Installation will be at the April 20 luncheon at Shelter Island Inn with an 11 a.m. social hour preceding the noon buffet. Reservations must be called before 5 p.m. April 18 to Mrs. Cavanagh, 279-1633, or Lou Nordeck, 273-1140. The new executive board will serve as hostesses.

Awards all the way around were presented at the March luncheon with Margaret Brock tapped as "Woman of the Year" for the second consecutive time in recognition of her contribution to club work. The trophy goes each year to the woman who has devoted the greatest number of "service hours" to club activities.

Women receiving awards for more than 100 hours were Jeanne Jones, Mrs. Loftin, Nadia McIntyre, Mrs. Nordeck, Helen Ramberg, Kay Schroeder, Diana Umberger and Mrs. Whitbey. Service plaques were presented Mrs. Erwin, Anita Klepach, Mrs. Cavanagh, Evelyn Morefield.

Certificates and other awards went to activity and potluck chairmen.

Package Trips To Games Set

Ball time is here again, sports fans!

Start signing now for two CRA-sponsored trips in May to watch major league clubs play in Los Angeles.

Four buses will be chartered for the May 1 game, Dodgers vs. Cincinnati, at Chavez Ravine stadium. Two will be reserved for the May 15 double-header pitting the Angels and Boston at the new Anaheim stadium.

Total cost to see the Dodgers is $5.50 per person for transportation and game admission. One bus will leave Lindbergh Field plant's parking lot north of Bldg. 19 at 9:30 a.m. and return at 6 p.m. Three buses will depart from the Kearny Mesa parking lot in front of Bldg. 2 by the flag pole at the same time.

Price for the Angels vs. Boston trip is $5 each. Buses leave from the same parking lots at Lindbergh Field and Kearny Mesa at 10 a.m. the morning of May 15.

Reservations will be taken on a first-come basis at CRA Clubhouse, KM, ext. 1111, or LF employe services, Bldg. 16.

Basketball League Standings Announced

Final standings in second half of Convair shop basketball league play were:

TEAM	WON	LOST
Flight Control	7	0
IBJQB	6	1
Comets	4	3
Underbrush	4	3
GASP	3	4
Commandos	2	5
Dragons	2	5
595	0	7

DC-7 Chartered For Las Vegas Weekend

A chartered DC-7 will transport General Dynamics people to and from Las Vegas the last weekend of this month, April 29-May 1.

So many already have signed for the CRA-sponsored trip that original prices have been reduced to $27.50 for round-trip transportation only; $38 each for transportation and two nights at the Stardust Hotel; $55 a person for the full package deal including meals and nightclub shows.

Departure will be April 29 at 6 p.m. from Montgomery Field. The 90-passenger plane will leave Las Vegas for return flight at 4 p.m. on Sunday.

Deposit of $25 must be paid upon sign-up and the balance by April 25.

Forms are at CRA Clubhouse, Kearny Mesa; employe services outlets at Lindbergh Field plant, Stromberg-Carlson, and Electronics.

GOLFERS TO PLAY COTTONWOOD LINKS

Starting times for this month's CRA links tourney, April 23-24, at Cottonwood course will be assigned from tomorrow (April 7) until April 15, Commissioner Ken Wulfemeyer said. Call CRA Clubhouse, ext. 1111 KM, to sign.

CRA Calendar

(For information on CRA activities call CRA Headquarters, Kearny Mesa, ext. 1111. Deadline for copy for the next issue of GD/NEWS is noon, April 13. Call ext. 3322, KM, or 1071, LF.)

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ADVENTURERS — Joint trip with Rockhounds to Los Gavilanes, Baja California, April 16-17 Call Chuck Purdy, 279-1168.

BADMINTON—Play Mondays, 7-10 p.m., Federal Bldg., Balboa Park.

BICYCLE CLUB — Ride to Frontier Town April 9. Cy Campbell, trip leader.

BRIDGE — Play each Friday, 7:30 p.m., CRA Clubhouse.

BOWLING — Sign by April 16 for CRA championship tourney, April 30-May 1, May 7-8, Clairemont Bowl. Entry forms at employe services, CRA Clubhouse, bowling alleys. Entries now open for summer leagues. Call ext. 1111, KM.

CAMERA CLUB — Meeting April 17, 7:30 p.m., Photo Arts Bldg., Balboa Park.

CERAMICS — Instruction Tues., Wed., Thurs., 7:30-10:30 p.m.; Wed., 10 a.m.-1 p.m., CRA Clubhouse.

CHESS — Play each Wednesday, 7:30 p.m., CRA Clubhouse.

COINEERS — Meeting April 20, 7:30 p.m., Convair cafeteria, Pacific Hwy.

FENCING — Workouts and instruction Fridays, 7:30-10:30 p.m., YWCA, 10th & C Sts.

GOLF — Sign by April 15 for CRA tourney April 23-24, Cottonwood. Call ext. 1111, KM.

HI-FI/MUSIC — Meetings second Tuesday of each month, 7:30 p.m., CRA Clubhouse.

ICE SKATING — GD skate night Thursdays, 6:15-7:45 p.m., Mission Valley Ice Arena.

MOVIES — Reduced prices at State Theater, Euclid & El Cajon Blvd. Admission: adults, $1; children, 35c.

PISTOL CLUB — Club shoot 9:15 a.m., April 10, SD Police Range, Federal Blvd. and Home Ave.

RADIO CLUB—Meeting April 7, 7:30 p.m., CRA Clubhouse.

RIDING CLUB — Meeting April 13, 7:30 p.m., CRA Clubhouse. Fun show April 17, CRA horse ring.

ROCKHOUNDS — Meeting April 13, 7:30 p.m., CRA Clubhouse.

ROLLER SKATING — Free tickets at employe services for GD skate night April 18 at Skateland, Front and G Sts.

SCULPTURE — Workshop sessions Mondays, 7:30-10:30 p.m., CRA Clubhouse.

SOFTBALL — Managers meeting for slow-pitch and fast-pitch plant leagues April 13, 7:30 p.m., TV lounge, CRA Clubhouse.

SPORTS CAR CLUB — Meeting April 13, 7:30 p.m., Convair executive dining room, Pacific Hwy.

SWIMMING — Free swim night April 16, Mission Beach Plunge, 7-9 p.m. Tickets at employe services.

TOASTMASTERS — Convair Toastmasters No. 3745 meet each Wednesday, 4:15 p.m., CRA Clubhouse. Call D. R. Nash, ext. 2059, or Jim DeShazo, ext. 2056, both KM. Dynamic Toastmasters No. 467 meet every Thursday, 5:15 p.m., CRA Clubhouse. Call Eric Makela, ext. 1320, KM.

TOASTMISTRESS CLUB — Serra Mesa Toastmistress Club's April 18 meeting, 7:30 p.m., KM cafeteria, open to all Toastmaster and Toastmistress clubs, Management Club. Mary Alice Kraft, speaker.

TRAILERS — Road Runners meet April 21, 7:30 p.m., Gillespic Field Clubhouse. Outing to Barrett Lake Trailer Park April 22-24.

WIVES — Luncheon April 20 Shelter Island Inn. Potluck April 27 CRA Clubhouse.



HOOP CHAMPS—Team members of Flight Control, winner of CRA shop league basketball tourney, with trophies presented by Commissioner Gil Crosthwaite at March 24 awards banquet are, lower row from left, Nick Panos, Dick Bazinet, Frank White, Mick Trego, Jim Fithian, Jim Hann; top row, Fred Gatti, Beryl Lanterman, captain, Wayne Groesbeck, Ed Rincon, Bob Hertzberg. Bob Snelling was not present.

Team Organization Under Way For Summer Bowling Leagues

Sign-ups have begun for CRA summer keg leagues which will get under way the week of May 9 and extend through the week of Aug. 8, according to Commissioners Forest Erwin, Mike Brooks, and Jim Hayman.

Nine leagues are being formed for play at Clairemont Bowl, Parkway Bowl, Frontier Lanes, and Victory Lanes. All of these will start at 6:30 or 7 p.m. Deadline for signing is April 29.

Openings are being filled at CRA Clubhouse, ext. 1111 KM, for the following:

Clairemont Bowl — Monday night, Men's Trio, 510 scratch; Tuesday, Mixed Foursome, 620 maximum, handicap; Thursday, Mixed Foursome, 650 scratch; Friday Mixed Foursome, 62 maximum, handicap.

Parkway Bowl—Monday, Men's Trio, 510 scratch; Tuesday, Mixed Foursome, 640 maximum, handicap; Wednesday, Mixed Foursome, 620 maximum, handicap.

Frontier Lanes — Thursday, Mixed Leagues, GD/E and Convair, handicap.

Victory Lanes — Thursday, Mixed Foursome, engineering, handicap.

In addition, three special leagues will be organized if enough bowlers sign. One is for bowlers who prefer a later starting time. It will be a mixed trio 480 scratch, or men's trio 525 scratch on Monday nights at 8:15 p.m. at either Parkway or Clairemont.

The others are Convair Las Vegas Leagues for all who would like to wind up the season with a visit to the Nevada gambling city. Teams will bowl Fridays at Clairemont and Parkway Bowls at 6:30 p.m. starting May 6.

Fee is $3.25 per person each night and monies in the pot will finance the Las Vegas trip. This is a mixed foursome, maximum 620 average per team, 100 per cent handicap in team average to 620. Trophies will be furnished by CRA.

Call Erwin at ext. 2884 KM to sign for the special leagues.

Top Marksmen Collect Silver

Silver service prizes went to top marksmen in the registered ATA trapshoot sponsored by CRA Gun Club which drew a field of 63 contestants to the Gillespie Field Range on March 27.

Don Estes of Lakeside topped Class A in 16-yd. competition with a score of 87. Bill Smith of El Cajon shot a 98 to win Class B.

Vern Kline of National City broke a three-way tie for first in Class C in the shoot-off with Robert Connery of San Diego and Terry James of El Cajon who had all shot 92s. James, 17, was taking part in his second registered shoot after winning his class (Class D) in his first try in ATA competition in February.

Ellis Grihalva of San Diego dropped his 50th bird to finish with a near-perfect score of 99 for Class D. His previous best score was an 89.

Tex Darrough of Chula Vista was first in the 18-21 yd. division of handicap competition with a 92 and Estes shot another 87 to top the 22-27-yd. group.

Sylvia Campbell of Escondido won the combined high lady and high junior event with a 79.

Estes won the doubles event after breaking a tie with Joe Chilton of San Clemente in the shoot-off. Estes and Chilton both shot 93s.

Travelers to Mexico Will Plan Details

All General Dynamics people interested in traveling to Mexico this summer on the annual GD tour conducted by Convair's Jim Hardison will meet for a trip preview April 27, 7:30 p.m., in the Convair executive dining room, Pacific Hwy.

Dates will be either June 25-July 10 or Aug. 13-28, depending upon preference of those signing. Call Hardison at home, 276-5805, for information.

50 Teams Expected For Bowl Tourney

Entries for the annual CRA bowling championship tourney indicate at least 50 teams will compete in the two weekend event April 30-May 1 and May 7-8 at Clairemont Bowl.

Last day for entering is April 16.

Entry forms may be obtained at all plant employe services outlets, CRA Clubhouse, and local bowling alleys where CRA leagues are in action.

Links Scores

C. Gordon of DCAS had low gross and M. Hill (Dept. 400), low net in CRA golf matches Feb. 27 while ties tangled both low gross and low net honors in March 5 play.

Gerry Cox (Dept. 002) and Jack Nichols (Dept. 964) both shot 77s for low gross in the 0-14 flight. Jerry Swarts (Dept. 533) and Sterling Campbell (Dept. 584) scored 68 for low net.

Feb. 27 runners-up in the 0-15 flight were Pete Molis (Dept. 987), 82 low gross; John Jodka (Dept. 191), 68, low net. First-place Gordon shot an 81 and low net scorer Hill, 67.

Winners in the 16-19 flight at Bonita Valley were R. Buchrelli (Dept. 170), 84, low gross, and R. Westbrook (Dept. 507), 86, runner-up. Joe Rose (Dept. 400), 68, low net, and E. Bauer (Dept. 250), 69, runner-up.

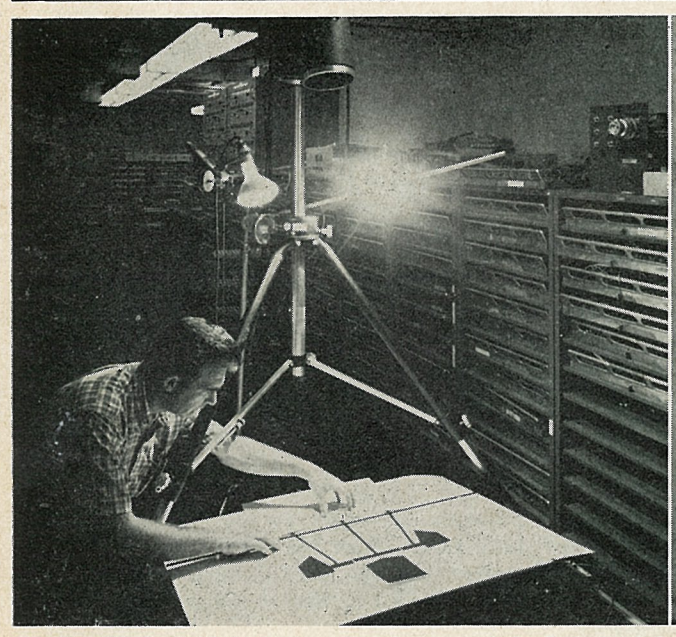
20-and-over—low gross, F. Young (Dept. 507), 84; runner-up, Bill Bullock (Dept. 113), 92,; low net, Walt Drew (Dept. 170), 66; runner-up, Bill Minando (Dept 113), 69.

March 5 winners at Coronado were: 15-18 flight—low gross, Gary Paxson (Dept. 142), 86; runner-up, Al Kelly (Dept. 195), 89; low net, Ed Hansard (Dept. 587); runner-up, Tobe Hunley (Dept. 400), 73.

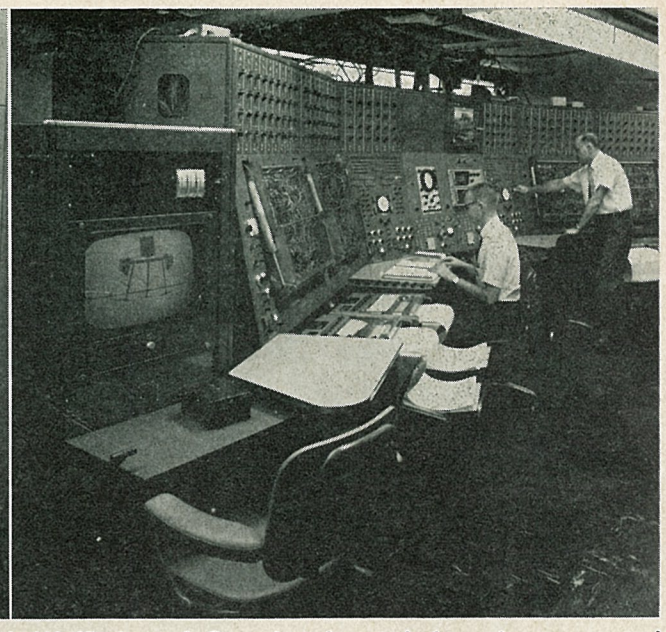
19-and-over flight—low gross tie between A. Roberts (Dept. 451) and N. Kourbales (Dept. 587), 93; low net, Jim Miller (Dept. 780), 68; runner-up H. Myers (Dept. 194), 70.

CRA Camera Fans To Hold Critique

CRA Camera Club members will criticize each other's slides April 17 at the 7:30 p.m. meeting in Photo Arts Bldg., Balboa Park, from pointers given by Ken Rinker at the previous session. Members were guests of the San Diego Model Railroad Club March 20.







DRY-LAND "VOYAGE" — In photo at left, Bob Wright, Convair analog computing facility technician, calibrates paper model of Navy hydrofoil craft equipped with Convair-developed HYSTAD, hydrofoil stabilizing systems, before closed circuit TV demonstration in which image was maneuvered just like an actual vessel at sea. In right shot, Frank Woffinden of Convair advanced dynamics group and Everett Price, project leader, make preliminary check of 6-degree of freedom analog simulation before demonstration. In center, Price operates simulated craft by switches on trim control box and throttle.

Accuracy of Flares on Tube Ends Checked Through New Technique

A series of optical gage charts, suggested by a tool inspector at Convair division's Kearny Mesa plant for use with an optical viewer in checking accuracy of flares on tube ends, are expected to be used widely in the aerospace industry.

The charts, actually a series of five engineering drawings on transparent mylar, incorporate parallel lines for measuring the accuracy of the radius of the tube flare when the flared portion is magnified 20 times.

Copies of the charts are now being used by Fort Worth division for checking flared tube ends used in engines of F-111s.

Another set has been provided for NASA's Marshall Space Flight Center in Huntsville, Ala., for checking about 10,000 tube flares used in each Saturn launch vehicle.

The charts are also used to check about 4,500 tube flares for use in each Atlas launch vehicle and in spot checking "sleeves" purchased from other firms.

Since the interior radius of the metal sleeves can not be checked directly on the magnification device, a material used widely by dentists is used to make an impression of the inside of the sleeve. The impression, after hardening, is removed and its magnified image is compared with lines on the appropriate optical gage chart.

The charts also are being used in milling extremely accurate dies for use in the Convair division's new Dynaflare flare-forming machine **(GD/NEWS, Oct. 13, 1965).**

The charts are expected to be used this year in checking more than 150,000 flared tube ends being manufactured for use at the Kearny Mesa plant alone.

Robert E. Hibbs, a tool inspector in Dept. 143-1 and a Convair employe for 26 years, originated the idea for the overlay comparator charts because of the difficulty in gaging accuracy of flares and differences of opinion among inspectors using the standard 180-degree angle charts.

Hibbs received a $343 check for his Employe Suggestion.

Twin OV1 Satellites Placed in Orbit by Vandenberg Launch

Twin OV1 satellites 4 and 5 were fired into different orbits early last Wednesday after being boosted into space on the nose of Atlas 72-D from Vandenberg AFB.

OV1-4 went into orbit with a 549-mile apogee and a 478-mile perigee and an orbital period of 103 minutes. OV1-5 had a 573-mile apogee, a 534-mile perigee and a 105-minute orbital period.

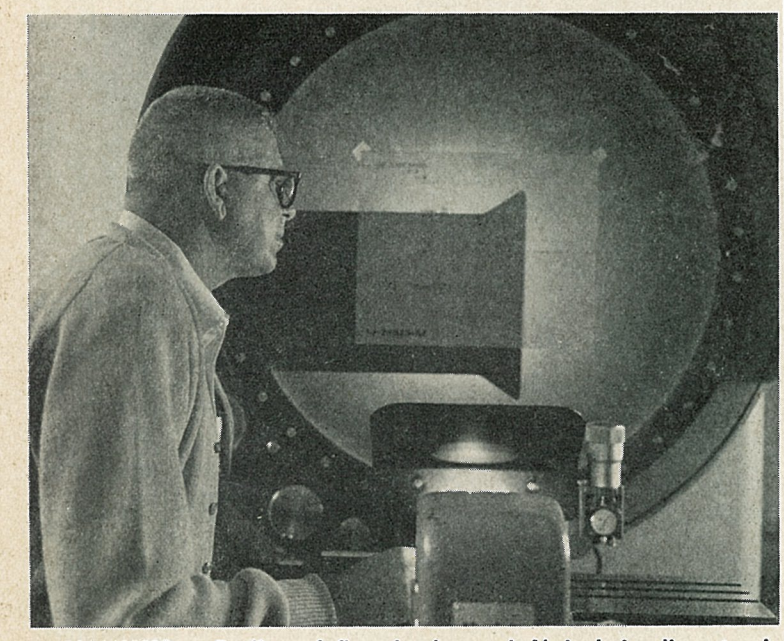
The twin satellites were ejected simultaneously from the dual-configuration pod in which they rode for aerodynamic heat protection during the Atlas-powered portion of flight. Both were placed in retrograde (east to west) orbits.

OV1-4 carried experiments to determine zero-gravity effects on photosynthesis and growth of green plants and on reproduction of duckweed and for study of environmental effects on various types of materials and coatings.

OV1-5 carried a series of instruments to measure optical radiation characteristics of the earth and space. It also was equipped with a Convair-developed vertistat to provide stabilization during orbit.

SALVAGE YARD OPEN SATURDAY

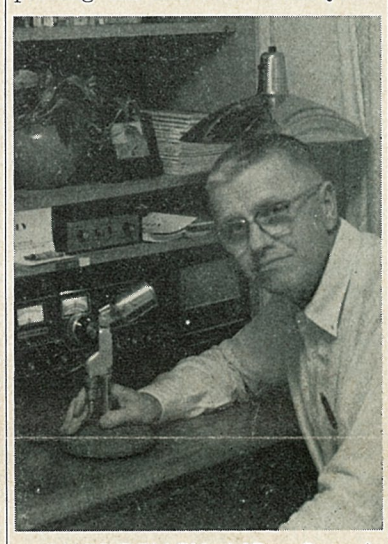
Only scheduled employes' sales day this month is set for this coming Saturday, April 9, at the Lindbergh Field salvage yard, adjacent to Gate 5. There will be a number of manual and electric typewriters on sale, in addition to the usual surplus materials. Sales hours are from 8 a.m. until noon.



ANALYSIS — Radius of flared tube end ½-inch in diameter is magnified 20 times and checked against optical gage chart by Robert E. Hibbs of Convair.

Convair Hams Take Lead in Plasma Search

Two Convair division employes who operate amateur radio stations as a hobby helped save or prolong the life of a seven-year-old boy in Santiago, Chile, recently.



EMERGENCY AID—Ben A. Penners of Convair who set in motion a mercy effort that eventually involved some 500 "ham" radio operators.

They are Ben A. Penners, engineering supervisor in Dept. 553-2 who operates station W6HLV from his home in Pacific Beach, and Edward S. Carson, a senior electronics technician in Dept. 780-4, who operates W6VNM from his home near Lemon Grove.

Penners was talking by radio to his daughter, Mrs. Sue Liska, in Bogata, Colombia, when John Hellyer, a former San Diegan, broke in from Santiago asking for help in obtaining special type of blood plasma not available in Chile.

The plasma was needed for Hernan Saavedra, a hemophilia victim and son of a Santiago police captain.

Penners phoned Carson to help monitor the frequency, 14300 kilocycles on the 20-meter band, and the two set up an emergency amateur radio "network" across the country. Penners said an estimated 500 amateur operators listened in and kept the frequency clear.

Eventually the plasma was located in Miami, Fla., by "hams" there and made available without charge by the Merck Sharp and Dohme pharmaceutical firm.

Panagra Airlines took the plasma to Lima, Peru, and a Canadian Pacific Airlines flight carried it on to Santiago.

A Santiago newspaper carried an account of the effort and commented "all this was made possible by radio amateurs and an air shipment and by the good will and the desire of men of various countries to be useful."

Correct mail zone number speeds up delivery.

Thrilling 'Ride'

'Make Believe Boat' Operated On Closed Circuit Television

A paper cut-out pattern of a Navy test craft, FRESH I, equipped with Convair's hydrofoil stabilizing system, driven by analog computer signals and flashed on closed circuit television, proved stability and controllability of the system in recent demonstrations.

The analog simulation evaluating the stability of Convair's HYSTAD (hydrofoil stabilizing device) at various gains and in different water depths draws to a close the development phase of the program, E. H. Price, Convair project leader, said. Additional analytical tasks will continue into June.

Convair engineers have been working on the subcavitating hydrofoil-strut system since fall of 1964 under a development contract from the U.S. Navy Ships Systems Command, formerly Bureau of Ships. Convair's HYSTAD, an all-mechanical control mechanism to provide stability for fully-submerged hydrofoil craft, is designed as a back-up to the vessel's electronic autopilot.

The analog simulation comes as close to the real thing—an actual vessel in open water—as it is possible to get, Price said.

A flat model of the hydrofoil craft, a two-hull catamaran with cabin, and the hydrofoil system was cut out of wax-backed plastic by Convair's art and editorial group. The pattern was mounted on pieces of cardboard and placed on a motor driven servo-plotter, and the three struts containing the HYSTAD systems were controlled by signals from the analog computer.

Actual response of the image to the depth of the foils in the water was achieved by a combination of information already fed into the computer and input from the operator's controls. The computer had been given, in advance, data on the HYSTAD system, FRESH I dynamics, and a sinusoidal sea representation. The operator in front of the television screen controlled the depths of each strut by switches on the trim control box, and the speed of the boat by a throttle. A horizontal line across the screen marked the surface of the water.

"The visual representation was exactly like riding water skis 50 to 75 yards behind the boat," Price said. "You could see the pitch angle of the deck and were always looking at the stern, even in the simulated turns."

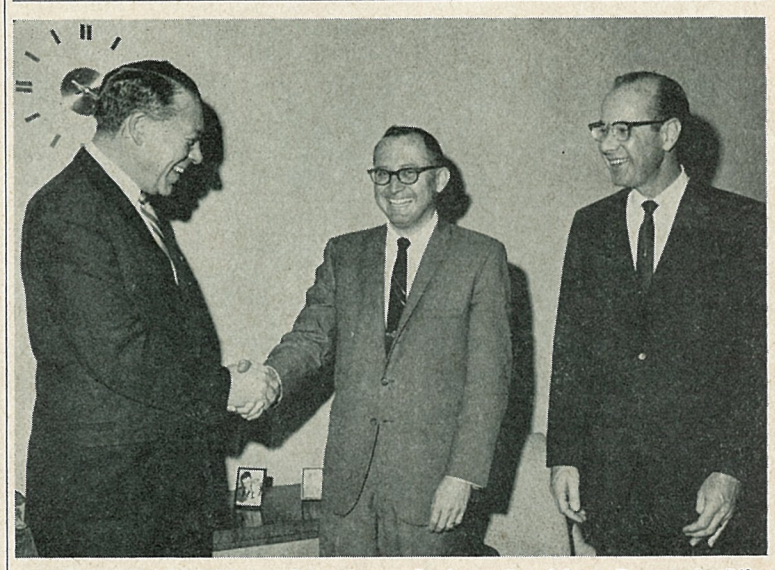
The "vessel" started from a stand-still position resting on the surface of the water, then began its "voyage" when the operator pushed the throttle, adding thrust as if the boat were propelled by its own turbofan engine mounted on the deck. The make-believe boat was speeded, slowed, and idled at 5 to 6 knots; driven into different depths of water by commands to the HYSTAD systems in the struts.

"The actual dynamic response of the vessel at various speeds was simulated, and forces and moments for each of the three struts containing HYSTAD systems were developed, just as if we were testing at sea," Price continued. "We are confident, from the results of these checkouts, that the system will operate satisfactorily."

John Cianiarulo of the System Support Section of Defense Contracts Administrative Support viewed the demonstration as government representative.

'CLASSIFIED ADS' BOARD ARRANGED

A bulletin board for "classified ads" has been put up at the Lindbergh Field employe services counter, Bldg. 16. Notices must be written on 3x5-in. cards with phone number, address, and date included. They may be left on the board two weeks.



PERFECT RECORD — Stromberg-Carlson President Dause L. Bibby congratulates Carl V. Shannon, manager - Data Products, on employes' record of no accidents during 1965. At right is Tom Worthy, vice president - industrial relations. Data Products' safety record led all operations at Stromberg-Carlson for year.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 19, No. 8 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, April 20, 1966

Business Brisk At Wind Tunnel, Demand Rising

Business at the Convair low speed wind tunnel has doubled during the last year since the installation of a high energy air supply which allows model testing of advanced short takeoff and landing craft now under development.

It was just over a year ago that the low speed wind tunnel was tied in with the air supply of the high speed tunnel by a 7,000-ft. pipeline which brings air into the low speed tunnel at 550 pounds of pressure per square inch at 20 lbs. a second. This air flow gives the Convair tunnel a capability enjoyed by few tunnels in the country today. Outside companies and other General Dynamics divisions are buying test time in quantities.

In fact, business is so good that bookings for the rest of this year may require three shifts to keep the tunnel operating around the clock, according to John H. Struthers, aerodynamics lab group engineer in charge of low speed wind tunnel operations under W. T. MacCarthy.

The tunnel has been in constant operation except for the time needed in between tests to set up flow valves and lines to hook into models, and down time earlier this month when the entire pipeline stretching from the Harbor Drive facility around Lindbergh Field was flushed out with chemicals and cleaned to better-than-new condition.

Testing conditions must keep pace with advancing technology, Struthers explained.

Air pressures at the tunnel now produce on scale models the same conditions encountered by full-scale planes at subsonic speeds in investigation of boundary layer control during development of high-lift aircraft.

As many as ten streams of air can be directed through and over a model at one time. Air through the models can drive air injection motors in the wing, eliminating the former power system of electric motors, shafts and gear boxes attached to the model. It also simulates the blast from jet engines to check direction of the blast.

Ground boards simulate runways with high energy air blown across them to duplicate forces around the plane during landing and takeoff. Boundary layer air is blown away so it won't inter-

(Continued on Page 2)



NUMBER ONE—Algie A. Hendrix, right, Corporate vice president-industrial relations, presents Corporate President's Award to Jack L. Bowers, Convair general manager, recognizing Convair's 1965 safety record. In center is M. V. Wisdom, division industrial relations director.

Convair Safety Record Earns Corp. Award

Convair division has been awarded the Corporate President's Award for outstanding safety accomplishment in 1965 in competition with all other General Dynamics divisions.

The division had .3 lost-time accidents per million hours worked and 9.57 days lost per million hours worked.

Algie A. Hendrix, Corporate vice president-industrial relations, visited San Diego early this month to present the award plaque to Jack L. Bowers, division general manager.

Hendrix commended Convair for its "excellent showing" and noted that the division also placed third in the 1965 National Safety Council aerospace division contest and received special commendation for Sycamore Canyon Test Site having gone three years and a million manhours without a disabling injury and for WTR having gone two years without a disabling injury.

"For the past three years we have given accident prevention priority emphasis Corporate-wide," Hendrix said.

"This is important, not only to employe welfare but to efficient business as well. Avoiding fire loss, injuries, damaged material and equipment makes our investment dollars produce a better return.

"Sustained, year-long efforts such as Convair has maintained could not have been possible without getting everybody on the safety team, setting high-level goals and encouraging all employes, supervision and management at all levels, to be aware of accident prevention."

Hendrix complimented the division on "this fine demonstration of high caliber teamwork."

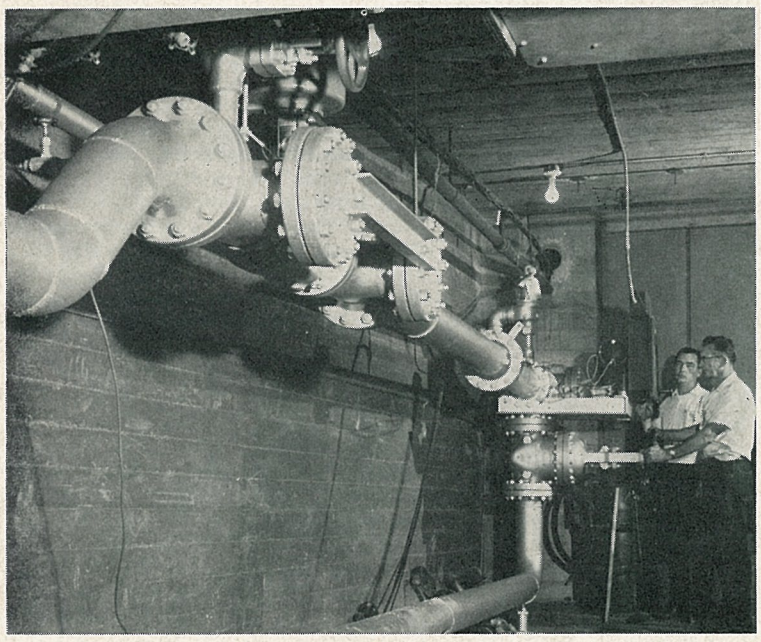
Jack W. Garrison, chief safety engineer, said all employes can take pride not only at having received the President's Award but for having worked so hard to achieve and better the stringent 25 per cent accident reduction goal set for the year.

Garrison said the division's General Safety Committee chaired by John Hopman, factory manager, and composed of all heads of operating departments should be commended for efforts that "formed the backbone of our program."

He said supervisors in each department also deserve special commendation for their safety efforts.

"Needless to say, our excellent results would not have been possible had we not had the fine backing we received from Mr. Bowers and our top management," he said.

Garrison noted that the division has set an even more difficult goal of an additional 10 per cent accident reduction for this year. "That will take a lot of diligent effort on everyone's part," he said.



AIR FLOW—George Perkins, Convair test engineer in low speed wind tunnel, watches George Kobets, engineering test lab mechanic, open valves in wind tunnel valve control room where air flow pipes connect with tunnel.

Salvage Yard Sales Scheduled May 7

Next employes' sales day at the Convair salvage yard, Lindbergh Field plant, will be Saturday morning, May 7. The sales days are scheduled once a month for the time being, R. H. Lange, supervisor of material sales, said. Hours are from 8 a.m. until noon.

FIVE MEN ATTEND APPRENTICE MEET

Five Convair men attended the biennial California Conference on Apprenticeship in Los Angeles, Calif., April 13-15. They were L. W. Turner and Harry Miller of educational services; Fred DeGreef, Dept. 401; Joe Aquelino, Dept. 015; and L. K. Thornbrugh, Dept. 031.

Initial Planning On C5A Under Way

Convair division is moving ahead in initial planning for the C-5 program under which it will build empennages for the giant Air Force C-5A fanjet transport, the world's largest airlifter.

Convair late last month was awarded a $40 million subcontract by Lockheed-Georgia Co., Marietta, Ga., prime contractor, for 58 C-5A empennages, plus two test articles. The Air Force has an option for 57 additional planes. Purchase orders call for design, development, engineering, testing, and production of the huge tails which will dwarf the large C-141 empennages on Convair's line for Lockheed the last four years.

A team of engineering, tooling, and production people, headed by R. W. Miller as C-5 program manager, is in Marietta, Ga., becoming acquainted with the overall program before bringing the engineering task to San Diego, James M. Adamson, Convair manager of Lockheed subcontracts, said.

Adamson directs both the C-5 and C-141 programs at Convair, with Miller, former C-141 program manager, transferred to the C-5 program.

Engineering design for the empennage will be in-house at Convair by May, Adamson said, with as many as 150 engineers assigned to the program at its peak. Convair engineers who have been

(Continued on Page 2)

Data Awaited On AC-8 Flight

Convair division space vehicles were launched from Eastern Test Range April 7 and 8 in two major space programs but full mission objectives were not achieved.

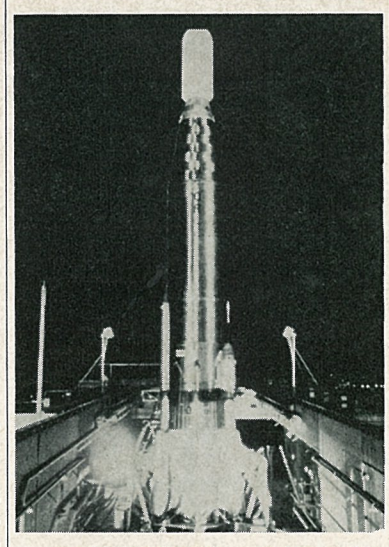
Atlas-Centaur 8 (Atlas 184D and Centaur 6D) was launched down the Eastern Test Range from Complex 36-B April 7 in a developmental flight to study cryogenic propellant action in earth orbit and to send a surveyor mass model to a "simulated" moon in space.

Although Centaur's main engines fired after the 25 minute "parking orbit" coast, the second

(Continued on Page 2)

Convair Plaque Commemorates 50 Atlas Launches at ABRES-B

A plaque has been presented to the Air Force officers and men of the ABRES-B launch complex at Vandenberg AFB by Convair division in recognition of 50 Atlas launches from the site.



50TH LAUNCH — Atlas 72D, the 50th Atlas vehicle launched from the ABRES-B launch complex at Vandenberg AFB, stands ready to loft OV1 twin satellites 4 and 5 into space.

Donald Fagan, Convair WTR manager, made the presentation to Maj. John G. Davis, ABRES-B site commander for the 6595th Aerospace Test Wing, March 31 in front of the ABRES-B blockhouse.

The 50th Atlas was 72-D, which at 1:20 a.m. the previous day had successfully launched the OV1 satellites 4 and 5 and carried a side-mounted scientific passenger pod into space. The first, Atlas 25D, was launched April 22, 1960.

Maj. Davis and several other members of the launch crew were on duty at the site for both historic launches. Davis expressed appreciation for both the plaque and support given by Convair's engineers and technicians at the site.

The inscription on the plaque states:

"Convair division . . . congratulates the officers and men of the

(Continued on Page 2)



ATLAS MILESTONE—Donald Fagan, Convair's WTR operations manager, presents plaque commemorating 50 Atlas launches from ABRES-B launch complex at Vandenberg AFB, to Maj. John G. Davis, ABRES-B site commander. Others, from left, are Curtis A. Johnston, Convair chief engineer; Col. Preston C. Newton, commander of 6595th Aerospace Test Wing; James Copeland, Convair site manager at ABRES-B; Lt. Col. Franklin C. Davies, Atlas ABRES project officer for 6595th; and Col. Robert C. Thompson, deputy for ballistic systems for 6595th.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between April 15 and April 30.

Thirty-year: Dept. 041-0, J. R. Benedict; Dept. 984-4, C. A. Gerber.

Twenty-five-year: Dept. 001-0, J. B. Bence; Dept. 015-0, R. E. Brown; Dept. 031-0, C. S. Rosefeld; Dept. 041-0, J. R. Valdez; Dept. 195-0, E. L. Brown; Dept. 545-3, S. R. Milis; Dept. 563-0, B. J. Tanonis; Dept. 566-2, G. M. Stetsuk; Dept. 850-3, H. N. Sylvester; Dept. 870-0, W. S. Tucker; Dept. 957-0, R. F. Fowle.

Twenty-year: Dept. 015-0, A. H. Landers; Dept. 019-0, H. L. Teich; Dept. 149-1, J. E. Campanella; Dept. 300-4, H. C. Ross; Dept. 420-6, E. E. McKenzie; Dept. 532-0, R. R. Wahler; Dept. 583-1, R. C. Rice; Dept. 733-0, M. E. Bjornson; Dept. 756-0, J. E. Anderson; Dept. 780-1, W. M. Young; Dept. 780-3, R. W. LaRue; Dept. 833-2, S. B. Huggins.

Fifteen-year: Dept. 015-0, R. Imhoff; Dept. 059-3, T. Lundquist, L. L. Sowles; Dept. 130-1, L. G. Avritt, D. L. Spencer; Dept. 195-6, J. E. Riley; Dept. 300-3, T. G. Saint Sing Jr.; Dept. 400-5, H. M. Ross; Dept. 553-3, W. S. Williamson; Dept. 588-3, E. I. Seiden; Dept. 592-0, R. R. Brazell; Dept. 758-0, A. F. Nobrega; Dept. 780-2, M. L. Cornish; Dept. 816-1, R. L. Davis; Dept. 832-1, R. M. Parrish, B. P. Romero; Dept. 963-8, J. P. Moore, A. F. O'Brien; Dept. 973-1, J. L. Hall; Dept. 984-4, L. M. Barnes; Dept. 987-0, G. S. Ford.

Ten-year: Dept. 015-0, C. J. Johnson; Dept 123-0, G. C. Conzalez, K. H. Hiler; Dept. 130-1, E. L. Barrett, F. Carrick, D. Davis Jr., R. M. Linville; Dept. 130-5, M. G. Meservy; Dept. 141-0, V. M. Sardo; Dept. 141-3, J. R. McCarty; Dept. 142-2, E. J. Franc; Dept. 142-4, S. A. Levinson; Dept. 143-2, M. Rios-Mercado; Dept. 143-3, D. M. Smith: Dept. 170-2, O. S. Williams; Dept. 194-0, H. S. Philan; Dept. 197-0, E. J. Stanley; Dept. 210-4, P. P. Shepard; Dept. 250-5, K. O. Chestnut.

Dept. 250-6, G. E. White; Dept. 300-2, D. V. Haynes, A. T. Neumann, C. E. Wolfe; Dept. 300-3, G. G. Furber, G. L. Richardson; Dept. 420-4, G. J. Bourke Jr.; Dept. 491-0, H. E. Manning; Dept. 505-1, W. J. Bayless; Dept. 511-1, F. K. Dorris; Dept. 524-0, V. L. Reid; Dept. 532-1, R. W. Berg; Dept. 566-3, J. A. Coutts; Dept. 574-1, N. M. Skow, J. B. Whitfield; Dept. 733-0, R. E. O'Neil; Dept. 756-0, J. S. Sorensen, R. E. Wills; Dept. 759-0, D. P. Dunican, R. F. Junghans; Dept. 780-1, C. L. Bryson; Dept. 780-4, C. Boynton.

Dept. 817-1, J. P. Gamache Jr.; Dept. 832-1, C. M. Chadwell; Dept. 832-2, A. K. Bradt; Dept. 832-3, C. Phillips; Dept. 833-1, D. E. Fluhart, J. S. Miranda, I. M. Morse; Dept. 845-4, S. E. Gore; Dept. 850-1, M. B. Weaver; Dept. 951-1, W. S. Hicks; Dept. 957-0, C. L. Parker, J. N. Pinkerton; Dept. 958-6, E. G. Denson; Dept. 963-8, N. R. Flores; Dept. 964-2, F. M. Rhodes; Dept. 966-1, J. R. Cannau; Dept. 972-0, R. F. Balvin, E. H. Kunkel; Dept. 976-3, B. J. Nichols; Dept. 978-3, O. R. Shaw; Dept. 978-4, M. M. Henry; Dept. 979-6, G. M. Young; Dept. 984-4, K. J. Jamrus; Dept. 985-1, J. E. Jones, J. Simko; Dept. 985-3, M. S. Cooper, B. K. Hawkins, D. Wilhelm.

ELECTRONICS

Fifteen-year: Dept. 4072, R. H. Pierce; Dept. 4073, V. A. Martineau.

Ten-year: Dept. 4077, T. E. Munson; Dept. 5082, R. M. Trent.

STROMBERG-CARLSON

Fifteen-year: Dept. 8110, H. W. Holmerud.

Ten-year: Dept. 8510, J. C. Kogan; Dept. 8530, C. A. Halonen; Dept. 8550, R. E. Vaughan.

Awards

CONVAIR

Employe Suggestion awards approved for the week ending March 25.

Dept. 001, H. G. Mondy (two awards); Dept. 002, H. B. Bender, E. D. Fountain; Dept. 041, F. A. Gordon, G. A. Hasti; Dept. 140, C. L. Amaral, J. J. Brandt; Dept. 141, W. F. Barto, J. E. Patterson; Dept. 143, J. S. Adams; Dept. 733, R. E. Reeves; Dept. 756, R. L. Essley; Dept. 759, P. P. Standley; Dept. 780, J. C. Yager; Dept. 836, R. L. Biedenbach, C. D. Duncan.

Employe Suggestion awards approved for the week ending April 1.

Dept. 001, W. A. Swanson; Dept. 002, E. Fountain; Dept. 015, V. J. Rocco; Dept. 016, B. M. Swanson; Dept. 031, Dan Whorton; Dept. 041, I. D. Howarter; Dept. 143, J. S. Adams (three awards); Dept. 400, Y. Z. Morris; Dept. 401, H. Tieszen; Dept. 403, D. C. Basore; Dept. 733, R. E. Reeves (three awards); Dept. 759, N. B. Byrd, G. D. Lundquist; Dept. 816, L. H. Barber; Dept. 954, H. E. Black; Dept. 970, W. E. Crow; Dept. 972, J. W. Magnuson, R. L. Robinson; Dept. 973, R. E. Florez (two awards); Dept. 987, L. O. Marine, H. R. Short.

Personals

CONVAIR

We wish to thank our Convair friends for the thoughtful cards and flowers at the death of our mother.

Woody (Dept. 031) and Lela (Dept. 149-2) Brotherton.

* * *

I would like to thank all of our Convair friends, especially those in Dept. 113, for the flowers, cards, prayers, and kindness during the long illness and death of my husband, Evan E. Jones.

Mrs. Evan E. Jones

General Dynamics News

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Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

Invention Disclosures

CONVAIR

BRUCE—R. E., Dept. 403-3, and G. R. VOLLMER JR., Dept. 420-0. Dispenser of Coiled Sheet Metal.

DOWDY—J. H., Dept. 562-2. Assembly Tool for Internal "O"-Ring Installation.

WOLGIN—Aaron, Dept. 592-0. A Device for Supporting, Restraining, Orienting, Rotating and Measuring, Storing and Providing a Sample Aliquot of Urine or Other Liquid in a Zero Gravity Environment. A Device for Storing and Dispensing Biological Stains in a Zero Gravity Environment.

Papers Presented

CONVAIR

CRUSH—James A., Dept. 141-4. "Radiographic Determination of Resistance Spot Weld Quality," and "Metallurgical Investigation of Defects in Resistance Spot Welds." University of Wisconsin Nondestructive Testing, Milwaukee, Wis., March 30-31.

CRUZAN—J. S., Dept. 958-7. "Three Methods to Estimate Reliability of Explosives." Canaveral Council of Technical Societies, Third Space Congress, Cocoa Beach, Fla., March 7-9.

DETHLEFSEN — Rolf, Dept. 596-0. "Fluctuations in Dense Nonequilibrium." 7th Symposium on the Engineering Aspects of MHD., Princeton, N. J., March 30-April 1.

FERRISO—C. C. and C.B. LUDWIG, Dept. 596-0. "Spectral Emissivity Measurements of Water Vapor at 2800° K Between 1 and 25u." Optical Society of America, 50th Anniversary Meeting, Washington, D. C., March 15-18.

LARSON—A. V., L. LIEBING, A. R. MILLER, Dept. 596-0. "Experiments with a Voltage Switched Pulsed Coaxial Gun." LARSON and LIEBING, "Experiments with a Pulsed Arc Plasma Thruster." Fifth Electric Propulsion Conference, AIAA, San Diego, March 7-9.

MILLER—C. A., Dept. 959-0. "Multi-Level Continuous Sampling—A Working Example." ASQC Western Regional Conference, San Diego, March 17.

MOFFAT—D. W. and PAUL SLYSH, Dept. 542. "Single-shot Transient Analyzer." IEEE 1966 International Convention, New York, March 21-25.

SLYSH—Paul, Dept. 542-0. "Modular Assembly in Space." U. S. Air Force Aero Propulsion Lab's National Conference on Space Maintenance and Extra-Vehicular Activities, Orlando, Fla., March 1-3.

RUARK—A. E., Dept. 170-2. "Configuration Accounting Requirements Configuration Status and Verification in Practice." UCLA Configuration Management Course, Los Angeles, March 18.

Presented at ASM/WESTEC Conference, Los Angeles, March 10: C. T. YANG, Dept. 572-0, "Analysis of Static Crack Propagation at Room and Cryogenic Temperatures." F. F. KROHN, C. W. ALESCH, Dept. 510-2, "Systems Material Analysis Considerations for Unitized Titanium Structure." J. E. CARLIN, Dept. 491-0, "Precision Tube Flaring by Controlled Metal Displacement."

In-Plant Training

ORIENTATION

NEW EMPLOYES—Educational services staff. Kearny Mesa, ext. 1931, Bldg. 17, Room 3, Monday, May 2.

PROFESSIONAL/TECHNICAL

SATS-MATS WELDING — Twenty-four hours. Bldg. 2. Mats line, Lindbergh Field, Wayne Turner, ext. 491.

AIRPLANE MECHANICS (On-the-Job Training) — Eight hours per day, 26 weeks, Lindbergh Field, Bldg. 3. Coordinator, Wayne Turner, ext. 491, Lindbergh Field.

ENGINEER HELPER TRAINING (On-the-Job) — Dave Wyche, Lindbergh Field. Eight hours per day, 20 weeks: Jan. 27-June 21; Feb. 14-July 1; March 7-July 22, Bldg. 5, Lindbergh Field plant. For information call Harry Miller, Kearny Mesa, ext. 1931; Wayne Turner, Lindbergh Field, ext. 491.

PLASTIC FABRICATION TRAINING (On-the-Job) — Lindbergh Field. Eight hours per day, 16 weeks, Jan. 20-June 10. For information call Wayne Turner, Lindbergh Field, ext. 491.

MILLING MACHINE OPERATORS (On-the-Job Training) — Eight hours per day, 26 weeks, Lindbergh Field, Bldg. 3. Coordinator, Wayne Turner, ext. 491, Lindbergh Field.

RELIABLE ELECTRICAL CONNECTIONS — Educational services staff. For information and quota call ext. 1931, Kearny Mesa. Weekly 7 a.m.-3:45 p.m., Bldg. 17, Room 10, Kearny Mesa.

Retirements

CONVAIR

BLAKELY—John S., Dept. 360-2. Seniority date Dec. 26, 1951, retired March 9.

CLOPTON—David P., Dept. 976-3. Seniority date March 5, 1951, retired March 18.

HARPSTER—W. A., Dept. 544-4. Seniority date June 7, 1954, retired March 25.

JOHNSON—Troy B., Dept. 401-4. Seniority date July 1, 1953, retired March 20.

SMITH—John B., Dept. 451-0. Seniority date Nov. 17, 1947, retired March 31.

STEIGER—Henry G., Dept. 015-0. Seniority date Sept. 18, 1946, retired March 31.

TOUCHSTONE—O. C., Dept. 250-3. Seniority date Feb. 12, 1941, retired March 31.

WAITE—Gordon T., Dept. 562-1. Seniority date March 1, 1937, retired March 31.

WRIGHT—Gilbert A., Dept. 832-1. Seniority date April 17, 1952, retired March 31.

Deaths

CONVAIR

BLYTHE—H. L., Dept. 817-0. Died April 8. Survivors include his wife, Floy J.

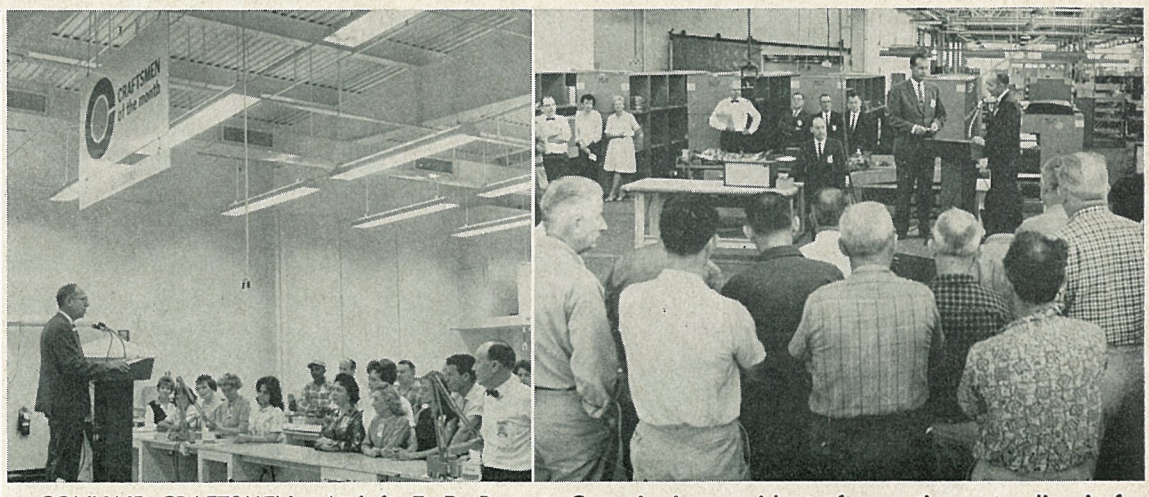
HENDRICKS—E. C., Dept. 031-0. Died April 5. Survived by wife, Fay Baker Hendricks, and son, Edward C. Jr.

KOSKELA—George W., Dept. 732-0. Died April 9. Survived by wife, Alie M., Dept. 780-1.

SKINNER—William A., Dept. 149-2. Died April 14. Survivors include his wife, Jeanetta.

TORRES—Reuben M., Dept. 964-3. Died April 6. Survived by wife, Inez.

When telephoning, never mind the weather. Get to the point. Telephone time costs money.



CONVAIR CRAFTSMEN—At left, E. D. Bryant, Convair vice president of operations, standing in for Jack L. Bowers, Convair general manager, presents Craftsmanship award for February to Dept. 733-15, electric bench at Kearny Mesa. W. M. Holland, assistant foreman, accepted for department. In photo at right, G. K. Cox accepts Lindbergh Field award from W. L. Van Horn, LF plant manager, for Dept. 002, welding and processing, which topped LF departments for third time. All Dept. 002 employes received silver Craftsmanship lapel pins.

Data Awaited On AC-8 Flight

(Continued from Page 1)

burn engine operation was not sustained.

Deane Davis, Centaur manager, said complete analysis of the difficulty would not be possible until telemetry data from down range stations had been processed.

Centaur's liquid hydrogen tank carried about 100 internal and external temperature sensors to measure the liquid hydrogen's behavior.

"From the standpoint of information development the flight was a very successful one," Davis said.

Atlas-Centaur 10, with a one-burn Centaur mission, is to launch an operational Surveyor for lunar landing in May. "If AC-10 flies as well through its Centaur first burn as AC-8 did, we shouldn't have any problem in hitting the moon," Davis said.

The United States' most complex unmanned spacecraft, the 3,900-lb. Orbiting Astronomical Observatory, was launched April 8 by Atlas SLV-3 No. 5001 and an Agena second stage from ETR Complex 12.

Although the OAO was placed in a near perfect 496 to 502-mile orbit above the earth, complications in its battery system resulted in loss of telemetry.

The Surveyor mass model, which was to have been placed into an orbit with a 503 nautical mile apogee and a 98 nautical mile perigee went into orbit with a 186 nautical mile apogee and 101 nautical mile perigee.

Atlas launch vehicles performed perfectly on both flights and officials said Centaur was "on the nose" through end of its coast phase.

Convair division representatives from San Diego at the Cape for the two launches included Grant Hansen, vice president-launch vehicle programs; Davis; J. S. Berggren, Atlas SLV-3 manager; William Vega, Centaur project engineer; Richard Wentink, Centaur chief technical representative; James Von der Wische, Convair program manager for NASA SLV-3 programs; Edwin Lindgren, OAO program manager; J. W. Beatty, design specialist, and Richard Christopher, plastics specialist.

Davis said both AC-8 and OAO launch crews have been commended for excellent performance. Daniel Sarokon was AC-8 launch conductor and Orion Reed was OAO launch conductor.

Monday Is Last Day To Sign For Vegas

Next Monday will be the last day General Dynamics people may sign for the coming CRA-sponsored trip by air to Las Vegas.

The trip will be made by chartered DC-7 April 29 to May 1. Entire cost must be paid by April 25 to assure transportation and hotel accommodations. Call CRA Clubhouse, ext. 1111 KM, for details.

Convair Plaque Commemorates 50 Atlas Launches at ABRES-B

(Continued from Page 1)

ABRES-B launch complex at Vandenberg on having achieved today a total of 50 launches of the Atlas missile . . . In compiling this record, the launch crew members of ABRES-B have consistently shown a high degree of professionalism and they have greatly contributed to the security of the nation, as well as to the advancement of aerospace technology."

Attached to the walnut plaque are replicas of the 50 Atlases with their number and name of the program under which they were launched.

Lt. Col. Norbert H. Riegel, chief of the ABRES-B branch for the 6595th, in a letter to Convair supervisors, engineers and technicians, said:

"We are particularly proud of the enviable record of Atlas mission successes achieved through the joint efforts of Convair and military personnel . . ."

The ABRES-B launch complex has seen service under four designations. It was the second Atlas launch site built for the Air Force by Convair and was known as 65-2 during construction in 1958-59. It was known as 576-B while under the 576th Strategic Missile Squadron and 4300-D while under the 4300th Support Squadron. It has had the ABRES-B designation since April, 1965.

BUSINESS IS BRISK AT WIND TUNNEL

(Continued from Page 1)

fere with test results.

An innovation, developed by George Perkins, test engineer, provides a visual blast from jet engines that can be seen and photographed. Water from an ejection tank is shot through the air pipes and into the model, forming a vapor which emerges as jet engine blast. Thus, the blast shape and path can be seen with the naked eye and camera. This visual test aid was an important part of recently-completed tests on jet engine thrust reverser configurations.

Smoke was used for flow visualization during wind tunnel tests last fall on a model of the new San Diego Stadium to determine effects of prevailing winds. However, Perkins said that the vaporized water has proved much more satisfactory in viewing air blasts than any other method yet tried.

Perkins is responsible for the high pressure piping under direction of P. N. Bosch, aerodynamics lab group engineer in charge of design.

Although most of the testing during the last months has been on V/STOL configurations and jet engine models for outside customers, General Dynamics projects, including hulls for Electric Boat division and seaplane models for Canadair, are scheduled into the tunnel periodically.

COINEERS TO MEET TONIGHT AT LF

Convair Coineers will meet tonight, April 20, at 7:30 p.m. in the Convair cafeteria, Lindbergh Field, with everyone interested in coins or medals urged to attend.

Two $5 gold pieces and Whitman albums will be raffled and two U. S. proof sets will be given as door prizes. A BU coin will go to everyone attending.

Initial C5A Plans Laid

(Continued from Page 1)

in Marietta since last fall working on preliminary design will be returning to Convair gradually as that phase of the design task is completed.

An On-Site Design Team of Convair and Lockheed-Georgia personnel was activated the middle of this month. Area on the third floor of Bldg. 51 at Lindbergh Field plant has been rearranged for occupancy of the design team and Convair's C-5 staff.

First engineering design release will probably be made in June with tooling to start later in the summer and fabrication of first detail parts in the fall. Assembly of the towering tails will be done in the high bay area of Lindbergh Field plant's Bldg. 2, paralleling the C-141 production area.

Lockheed has developed the C-5A transport under direction of Air Force Systems Command's Aeronautical Systems Division to greatly increase the Military Airlift Command's capability to transport all types of Army combat and support forces. First flight of the military C-5A is due in mid-1968 with first delivery scheduled for 1969.

The transport will have an overall length of 243 feet, height over tail of 63 feet in comparison with the C-141 empennage's 39.1 feet. Wing span will be 222 feet.

Gross weight will be over 700,000 pounds, more than twice that of the C-141. Payload will be a quarter of a million pounds for 3,200 miles, or 112,600 pounds nonstop across the Pacific Ocean.

Power plants will be four General Electric TF39 fanjet engines, each producing 40,000 pounds thrust. Top cruise speed will be 550 miles an hour.

The airlifter's cargo compartment will be 19 feet wide, 13½ feet high, and 145 feet long, including forward and aft, full-width ramps. Outsized equipment such as two M-60 tanks, weighing 100,000 pounds each, can be transported in a single plane. Helicopters, missiles, trucks, jeeps can fit into the C-5A in combination loads weighing 220,000 pounds or more. On the upper decks will be seats for approximately 100 persons.

T. R. May, Lockheed-Georgia vice president and C-5A program manager, said that Lockheed expects to see a civilian version, designated the L-500, carrying as many as 900 passengers or 140 tons of cargo over commercial routes by the early 1970s.

Vast Treasury of Information Available Through Convair Library

Convair division's modern library has the Herculean task of helping division personnel keep abreast of new developments in the "information explosion" of today's space age.

The library's 26-man staff has at its fingertips more than 23,000 books, 110,000 documents, 11,000 bound journals, 16,000 vendor catalogues and thousands of military specifications and technical orders. The library subscribes to more than 750 technical periodicals, including foreign publications.

Also received are publications from more than 60 abstracting and indexing services including such titles as International Aerospace Abstracts, Applied Mechanics Reviews, Reliability Abstracts and Technical Reviews, Biological Abstracts, Chemical Abstracts, Mathematical Reviews, Meteorological and Geoastrophysical Abstracts, Nuclear Science Abstracts and Psychological Abstracts.

In addition to the 6,000-square-foot library in Bldg. 4 at Kearny Mesa, a branch is maintained in Bldg. 5 at Lindbergh Field with interchange of reference works as required. Air Force technical orders and military specifications are on file in Bldg. 51 at Lindbergh.

Last year the library circulated more than 50,000 books and documents, more than 200,000 military specifications and more than 100,000 Air Force technical orders.

Louis Canter, manager of Convair's library since 1956, formerly was librarian for the Johns Hopkins University applied physics laboratory and for the National Bureau of Standards' ordnance and electronics division in Washington, D.C.

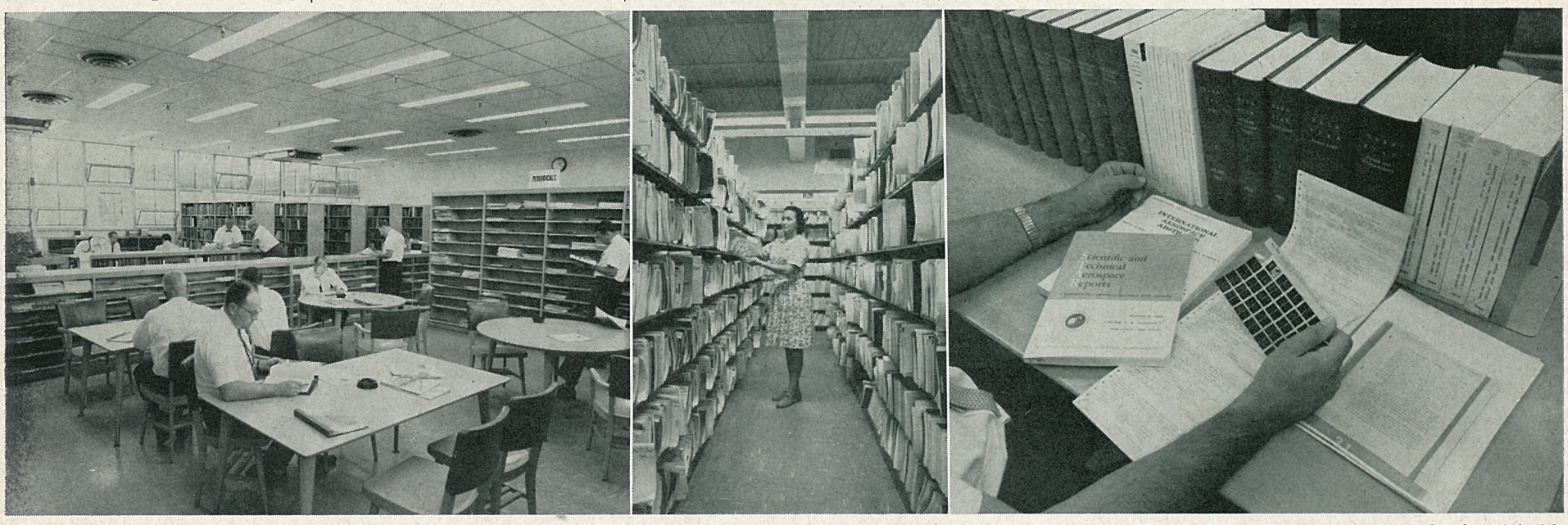
Six members of the library staff are professional librarians with years of technical library experience.

One of the key staff members is Mrs. Gertrude Duffy, a multi-lingual translator. Last year she translated 102 articles covering several hundred pages from French, German, Spanish, Portuguese, Italian, Czechoslovakian and Russian technical sources. She also translates from 20 to 50 foreign language letters received each month by the division from other countries.

Card catalogues in the library contain more than 700,000 indexed references. The library's own resources are supplemented by arrangements with other major libraries in the San Diego area, at other General Dynamics divisions and at major universities throughout the country for loan or photocopying of material.

Both technical and non-technical departments of the division call on the library for assistance. Canter points out, for example, that material from library files has been of assistance to personnel from legal, contracts, purchasing, safety, medical, educational services and community relations functions.

Library reference service personnel have been called on to provide information ranging from such things as the size and number of insects at Kennedy Space Center and the length of runways on islands in the Pacific to lists of reports on interplanetary space vehicle guidance systems.



INFORMATION CENTER—Convair library houses more than 200,000 reference books, journals, technical periodicals, documents and vendor catalogues. Access is maintained to many more in other libraries across nation. In center, Doris Leeds, library assistant, pulls one of more than 110,000 technical reports, dealing with aeronautics, space technology, metallurgy, life sciences, etc. At right, hand holds 4 x 6-inch sample of NASA microfiche (microfilm) by which engineers have access to more than 85,000 technical reports. Reports can be read on viewer, or copies obtained by machine.

'20 Years Ago' Item Unites Ex-Iowans

It's a small world.

E. W. Wine of Convair Dept. 142-1, who formerly lived in Panora, Ia., recently noticed a "20 years ago" item in a Panora newspaper reporting that the Kenneth Richey family had moved to San Diego.

Wine found Richey in the telephone book and called him. It turned out that Richey also works for Convair, is in Dept. 744-0, and the two have many mutual friends both in Iowa and in Convair.

Change to Daylight Saving Set For Sun.

Daylight Saving Time will go into effect this Sunday (April 24) in all states approving the time change.

Clocks will be set ahead one hour at 2 a.m. that day.

General Dynamics people will report to work by the new time on Monday, April 25. The lost hour will be regained in October when standard time is resumed.



BEST IN NATION — Convair division's first place award plaque from National Maintenance Merit Awards contest is shown by W. J. Stanley, manager of plant engineering. Smaller medallion at left was individual award.

Division Wins No. 1 Award In Utilities Conservation

Convair division has received a first place award plaque for excellence in utilities conservation in the 1966 National Maintenance Merit Awards contest sponsored by Factory magazine.

George J. Vila, manager of General Dynamics' Cleveland, Ohio, office, accepted the plaque for the division at a March 22 awards luncheon in Cleveland.

A smaller, engraved medallion was presented to W. J. "Bill" Stanley, manager of plant engineering for Convair, and another will be given to N. V. Janusz, industrial engineer who prepared the contest report entered by the division.

The report told of 200 cost reduction projects that have pared the division's utilities costs by more than a million dollars during the past four years. Among examples cited was a $40,000 annual saving by eliminating unnecessary idling of a wind tunnel motor on weekends.

Included in the report were copies of a utilities control card used by the division for fast elimination of air and water leaks and copies of "Big Bills Are for the Birds" decals used to remind employes to be conservative in use of lights, water and long-distance phone calls.

Factory magazine published the award-winning report in its March issue. Stanley also was author of a "vital issues" feature article in the issue. It described advantages in using centralized rather than area maintenance facilities.

McCOY RENAMED TO HOSPITAL BOARD

Dean McCoy, Convair chief of administrative services, has been reappointed to a second four-year term on the board of trustees of the Fairview State Hospital of California. He has served on the board since February, 1962.

Library Linked to NASA and DOD In Information Exchange System

A NASA microfiche (microfilm) system coupled with Convair division computer equipment now enables the division's library staff to provide up-to-the-minute, state-of-the-art technical information as needed.

The space-age linear information retrieval system works like this:

When an engineer or scientist needs to find out what has been done in a particular field in this country or abroad, he personally submits a written literature search request to the library.

From his own knowledge, this includes as many subject headings, related terms and names of contractors working in the field as possible and indicates how far back in time the search should extend.

Terms to be searched out are "weighted" and converted to a numerical system for use in punching cards that will obtain print-out of bibliography from a series of NASA computer tapes that are updated monthly.

If the search is for information on effects of liquid hydrogen on titanium, for example, "weighting" of the two key words results in print-out of information only on published material containing both. "Weighting" also can limit to classified or non-classified material as desired.

The NASA tapes contain a bibliography and fairly detailed set of key terms included in all materials catalogued more briefly in NASA Scientific and Technical Aerospace Reports (STAR) and in International Aerospace Abstracts (IAA) published by the American Institute of Aeronautics and Astronautics.

After the engineer or scientist reviews the computer print-out, he selects the articles or reports he wishes to obtain. Those not readily available in published form are on NASA microfiche in the library.

Each piece of 4 x 6-inch microfiche contains 70 pages of test reports, journal articles, conference proceedings or other documents. More than 85,000 such reports are now stored in the microfiche file and several thousand are being added monthly.

Information on microfiche can be read on a viewer in the library or copied six pages at a time on a machine in the division's microfilm center in the same building.

"The NASA microfiche and computer tape provides a complete retrieval system for almost all available aerospace information and literature," Louis Canter, division librarian, said. "This adaptation of space-age techniques to library purposes is unequalled."

Canter pointed out that technical articles are cross referenced only under very broad general headings in published literature indexes but on the computer tape can be cross referenced scores of times by key words.

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The Department of Defense also operates a large Defense Documentation Center (DDC) in Alexandria, Va., which publishes a semi-monthly Technical Abstract Bulletin (TAB) listing all technical reports prepared by DOD contractors.

DDC also has its more than 750,000 documents stored on computer tape and provides bibliographies and reports on request from Convair's library.

Linked with DDC are several specialized information centers that also provide technical reports and advice for Convair engineers and scientists.

They include an Infrared Information and Analysis Center, a Chemical Propellant Information Agency, a National Oceanographic Data Center, a Defense Metals Information Center and a Thermophysical Properties Research Center.

Reporting of New Technology Stressed in NASA Contracts

A more refined system for reporting new technology to NASA by major defense contractors was announced recently in a new procurement regulation directive.

James Stephenson, NASA contracting officer at Kearny Mesa, said the directive requires Convair and other prospective contractors on all major proposals to spell out in detail how provisions of the "new technology" clause will be carried out.

Stephenson pointed out that public dissemination of new technology developed under its contracts is one of NASA's important functions, thus insuring maximum public benefit from space effort expenditures.

Detailed information will be mandatory for all contracts in excess of $1 million where research, experimental, design, engineering or developmental work is contemplated and for smaller contracts when determined by the contracting officer that cost would be justified by new technology developed.

Contract or proposals will be required to summarize technical problems to be solved which are most likely to generate new technology, emphasis to be given and personnel to be responsible for new technology reporting, plans for indoctrination of personnel and methods by which all new technology will be reported.

"Any new or improved product, device, material, process, method, computer program, technique, composition, system, machine, fixture or tool will be reportable," he said.

Stephenson pointed out that the public already benefits from electronic micro-miniaturization, plastics and other products that have evolved from aerospace industry work under NASA and DOD contracts.

"We are spending millions of the taxpayers' dollars to generate new technology. We want to see they get maximum benefit from those dollars."



FAA EVALUATION—Federal Aviation Agency and Convair officials participating in April 5-7 FAA Triennial Production Certification Board Review at Convair Lindbergh Field plant are, from left, R. H. Gilliland, manager of LF reliability control; E. D. Shannon, Convair manager of aircraft flight test; T. J. Butters, FAA chief manufacturing inspection branch; R. L. Lippis, FAA assistant chief aircraft engineering division; P. I. Harr, Convair director of reliability control; R. J. Bowers, FAA supervising inspector, Long Beach region.

FAA Certification Continuing On Aircraft Parts Production

Convair's Lindbergh Field plant procedures and facilities were surveyed early this month by the FAA Triennial Inspection Board for the purpose of continuing the Federal Aviation Agency production certificate No. 605 under which Convair has been operating since 1948.

R. L. Lippis, FAA assistant chief, aircraft engineering division, chaired the FAA Triennial Production Certification Board in San Diego for the inspection review April 5-7.

Other FAA officials included T. J. Butters, chief manufacturing inspection branch; Douglas Sharman, aerospace engineer; C. H. Mackal, electrical engineer; T. F. Curran, aerospace engineer; John J. Francek, supervisory flight test pilot; L. R. Dilbeck, assistant chief manufacturing inspection branch; Michael Brega, supervising inspector, San Diego region; James C. Butler and J. H. Creighton, manufacturing inspectors; and R. J. Bowers, supervising inspector, Long Beach region.

W. L. Van Horn, Lindbergh Field plant manager, outlined Convair's present commercial aircraft programs which include support of 98 four-engine jet transports and 525 piston and turbojet aircraft in operation with 24 domestic and 40 overseas airlines.

"In addition to the airline and executive operators, we supply parts, kits, and miscellaneous services to approximately 200 overhaul and repair facilities and parts agencies," Van Horn explained. "To support these aircraft, we carry in excess of 10,000 twin-engine and approximately 24,000 jet separate line items in our spares inventory."

P. I. Harr, Convair director of reliability control, explained the reliability control relationship to management. R. H. Gilliland, manager of Lindbergh Field reliability control, was responsible for coordination of the FAA review.

Other Convair men making presentations were R. E. Carlson who spoke on internal audit's function as it relates to reliability control and the evaluation of procedures to assure adequacy and proper implementation; J. W. Ensign and L. J. Hayes, spares provisioning and change control; P. A. Canegaly, relationship of the FAA designated engineering representative to material review; L. C. Stuckey, receiving inspection. A. R. Zullo, Charles Wallman, J. R. Dressler spoke on various areas of quality assurance and quality control.

Renewal of the production certificate is expected before May 10, expiration date of the current production certificate.

Classes Slated In Management

Two new management classes — one on "Principles of Managing" and one on "Marketing Decision Simulation" — have been scheduled for Convair Management Club members by the club's education committee.

John Leib, chief design engineer, and William Chana, chief of proposal development, will instruct the "Principles of Managing" course from 6 to 8 a.m. Thursday for 10 weeks beginning May 5 in KM executive dining room.

Robert Williams, chief of guidance analysis, will conduct the "Marketing Decision Simulation" course from 4:45 to 5:45 p.m. Thursdays for eight weeks beginning May 5 in the Bldg. 2 presentation room at Kearny Mesa. Participants will "manage" a simulated business firm, utilizing 7094 computer techniques.

Employes planning to attend are asked to notify Williams, KM mail zone 586-00.

DUKE AND WALLER EARN COST HONORS

E. M. Duke Jr. of Dept. 141-2 and R. J. Waller of Dept. 170-9 received Convair Management Club "Cost Reduction Man of the Month" award plaques for January and February at the March 16 meeting at Hilton Inn.

Duke's cost reduction proposal established a new procedure for handling special-cleaned parts that will eliminate redundant cleaning and handling and save $17,324.

Waller's proposal for using teletypewriter equipment instead of a private wire system will save the division $50,088.

Duke is a quality control engineer in the contamination control group of quality assurance and Waller is an assistant office services supervisor.

Bowers and Hendrix Will Address Club

Convair Management Club has scheduled key speakers for its next two meetings.

Jack L. Bowers, Convair division general manager, will give a progress report on the division next week (April 28) in the Balboa Park Club. His title is "New Horizons in a New Era."

Algie A. Hendrix, General Dynamics vice president-industrial relations, will speak May 17 in the Hilton Inn.

The April meeting is sponsored by the launch vehicle programs organization and the May meeting by the industrial relations department. Tickets are available from Management Club Boosters at both Convair plants.

S-C Mgt. Club Slates Marketing Address

"Marketing A-Go, Go" will be the topic of Howard I. Jacobs, director of marketing for S-C Data Products, when he speaks to the Stromberg-Carlson Management Club tomorrow evening, April 21.

The dinner meeting will be at the Bronze Room in La Mesa. Social hour starts at 5:30 p.m., followed by dinner at 6:30.

Election results will be announced and new officers introduced. Installation will be in May.

One Less Worry

Heart Attack Victim Recalls Long Illness, Convalescence

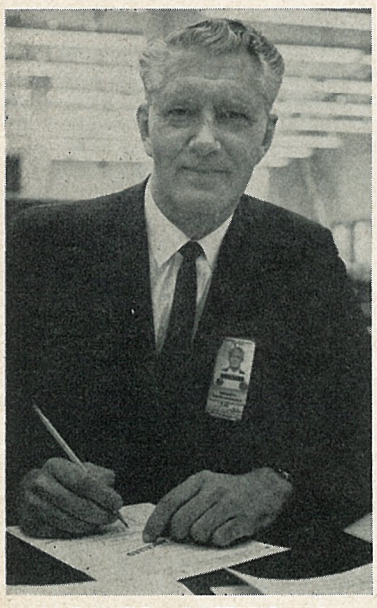
A man suffering from a heart attack has enough to worry about without being concerned with medical bills.

This was Larry Lawson's sentiment last week as he looked back over the last year and a half.

The veteran Convair inspector (since 1940) was seated at his desk at 8 a.m. that day in October, 1964, when he was seized by excruciating chest pains. He buried his head in his arms and told Virginia Samuelson, who was nearby, to call the plant hospital.

"I think I have a heart attack."

In minutes an ambulance was at the door and firemen were there with oxygen and a stretcher. A quick examination by Dr. G. M. Clarke and he was on the way to Mercy Hospital. It would be seven weeks before it was safe for him to go home to convalesce, and many more weeks before he was back on the job.



BACK TO BATTERY — Larry Lawson, on road to full recovery after heart attack, reports extent to which group insurance helped.

"From that moment until now, total medical costs amounted to $6,532.60," Lawson reported. "Of this, Convair group insurance paid $5,077.51 and I paid the balance.

"During those days of pain and uncertainty it was a great relief to me — and to my wife — that money was not among my immediate worries. I knew that Convair group insurance would absorb approximately 80 per cent of the bills."

The actual hospital bill amounted to $3,174.75, which included considerable laboratory work and cardiograms and use of a "heart machine" to which Lawson probably owes his life. Round-the-clock nurses' care came to about $1,000 additionally.

Although Lawson is now on the way to complete recovery, it has been a slow process involving continued medication and check-ups by heart specialists. Indicative of his progress is that his checkup now is only once every four months. Convair insurance continues to pay the bulk of the bills.

(EDITOR'S NOTE: The case of Larry Lawson is not an isolated one. There have been many in which protection of Convair group insurance has been a vital factor in preserving family financial stability. There are others on the books right this minute.)

'Inside Convair' Series of Talks To Give Details on Future Work

Convair Management Club's Education committee has scheduled the first six in a series of "Inside Convair" presentations to give all employes detailed information on work being done and plans for the future.

Presentations will be given on Tuesdays in the Kearny Mesa cafeteria and on Thursdays in the Lindbergh Field engineering auditorium. Each session will be from 4:45 to 5:45 p.m.

The manager of the program under discussion will speak, followed by a question and answer session.

First presentation will be a classified talk on ICBM programs on May 3 and 5 with Patrick O'Leary speaking. All attending will be required to have a secret clearance.

Other currently scheduled presentations are unclassified and open to all employes.

Following are program names, dates presentations are to be given and names of speakers:

Apollo Applications Program, May 10 and 12, James Brady.

Dart Program, May 17 and 19, Jack Hurt.

Launch Vehicle Programs, May 24 and 26, Andrew Kalitinsky.

Maneuverable Re-entry Vehicles and Advanced Booster, June 7 and 9, Richard Nau.

Analog-Digital-Hybrid Computers, June 14 and 16, Drs. Allan Wilson and W. J. Schart.

Robert M. Williams, education committee chairman, said the series will be expanded later and employes attending each of the talks will learn "what we are doing, how it looks from here, where we are going and how we plan to get there."

Ford Passenger Cars, Trucks Will Be Sold to High Bidders

Twenty-one Ford passenger cars and trucks will be sold to the highest bidders from among General Dynamics people this month, R. H. Lange, supervisor of material sales, announced.

The vehicles are 1963 and 1964 models, Lange said, and in good condition. Purchase prices will be close to wholesale rates.

On sale are two ¾-ton pickups, 9 ¾-ton stake body trucks, three Econoline vans, three 9-passenger station wagons, two Falcon club wagons, one Galaxie sedan, and a Custom sedan.

They may be inspected until 5:30 p.m. every day through April 27 at the Kearny Mesa salvage yard, near Bldg. 33. Bids will be accepted at both Kearny Mesa and Lindbergh Field salvage yards or the bid control office in purchasing up to 1:30 p.m. on April 28. A deposit of 20 per cent of the bid price, in cash or certified check, must accompany the bid.

Bid forms now are available in the material sales office, Bldg. 31, KM, or at either salvage yard.

For further information call Lange, ext. 3640 KM; Roy L. Eastberg, ext. 1873 KM; or V. D. Jennewein, ext. 1609 LF.

Two Score From General Dynamics Serve As Science Fair Counselors and Judges

Sixty-five of the 475 students with exhibits in last week's Greater San Diego Science Fair were sons and daughters of General Dynamics personnel. Forty-four were children of Convair employes, 17 of General Atomic employes and four of Electronics-SD employes.

The General Dynamics divisions had 40 employes serving as counselors and judges for the Science Fair. They were:

Electronics-SD — James W. Crooks and Ray M. McIntyre.

General Atomic — Dr. W. F. Bethard, Peter Baima, Dr. Giovanni Caprioglio, Dr. Morton A. Fineman, Dr. Peter Gantzel, Walter V. Goeddel, Dr. George Hinman, Charles S. Luby, Dr. Park H. Miller, Roy E. Norman, Dr. Rowan Schmitt, George T. Schnurer, Dr. Herschel R. Snodgrass, Dr. Martin O. Stern, G. R. Tully Jr. and Dr. D. O. Wissinger.

Convair — James F. Brady, Dr. John Breeze, M. O. Campbell, E. W. Carlson, Richard L. Forrest, Donald P. Germeraad, Dr. Michael Griggs, James F. Haskins, Dr. Samuel Kaye, Dr. R. M. Leger, Vincent A. Martin, Dr. J. M. Maughmer, Lloyd E. Munson, Dr. Bernard D. Newsom, Gerald L. O'Barr, George E. Pynchon, Dr. William L. Schart, Edward W. Schwartz, Robert S. Shorey, T. T. Tanalski, Aaron Wolgin and Dr. John H. Wray.

A large number of the student Science Fair exhibitors were guests of Convair division for a tour of the Kearny Mesa plant.

Interviews Slated For Peace Corps

Two Peace Corps representatives, William Hoadley and Peter Stevens, will be at Convair division May 3 and 4 to interview prospective candidates for the Corps.

Employes may arrange an interview by notifying their supervisors who will contact Mrs. Jane Matthews, Kearny Mesa ext. 2046, for an appointment. Supervisors at facilities outside San Diego are to forward names to Mrs. Matthews, Kearny Mesa mail zone 130-90. Prospective candidates will be interviewed later.

The Peace Corps needs volunteers for service in about 50 different countries in Africa, Asia and Latin America. Volunteers are needed with all types of craftsman skills.

Bicyclists Journey To Frontier Town

Fourteen members of the Convair Bicycle Club met in Spring Valley the morning of April 9 to ride a pleasant 25-mile round trip to Frontier Town at Big Oak Ranch. They were met there by others for a picnic lunch.

Next meeting will be Monday, April 25, in Room C of the CRA Clubhouse, Kearny Mesa, 7:30 p.m. Anyone interested in joining the group or taking part in the outings may call Joe Olander, chairman, ext. 2709 KM.

DIVERS SEARCH FOR ABALONES

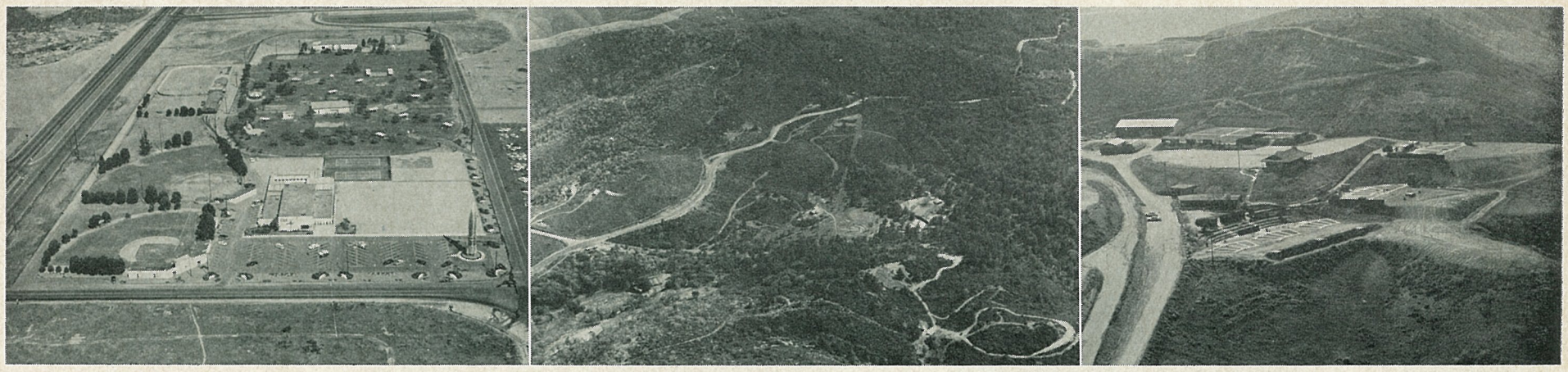
Delta Divers had their first abalone dive of the season Sunday at La Jolla and topped off the morning with a hamburger and hot dog cookout with wives and children. Jim McGinnis, president, Chuck Davis, treasurer, and Bob Eaton have been named team captains for the year.

TEAMS COMPETING IN IRC VOLLEYBALL

Three Convair teams are competing in the IRC volleyball league which started play April 6. The ten-team league tourney will continue through June 8 with games at 7 and 8:30 p.m. every Wednesday evening in Balboa Park's Muni Gym.

CAMERA FANS LEARN WEDDING PHOTO TIPS

CRA Camera Club will learn fine points of taking wedding pictures at the May 1 meeting, 7:30 p.m., Photo Arts Bldg., Balboa Park. Next quarterly contest will be at the May 15 meeting.



PLAYGROUNDS—Convair Recreation Association facilities for enjoyment of employes are expected to come into even greater use as summer approaches. Left above is aerial view of CRA grounds at Kearny Mesa while at right is aerial of facility overlooking Gillespie Field that features trap, skeet and rifle ranges. In center is CRA's mountain resort, Pine Crest, located three miles south of Julian opposite Inspiration Point on Highway 79.

CRA Calendar

(For information on CRA activities call CRA Headquarters, Kearny Mesa, ext. 1111. Deadline for copy for the next issue of GD/NEWS is noon, April 27. Call ext. 3322, KM, or 1071, LF.)

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ARCHERY — Reorganization meeting and film showing tomorrow (April 21), 7:30 p.m., Convair cafeteria, Pacific Hwy.

BADMINTON — Play Mondays, 7-10 p.m., Federal Bldg., Balboa Park.

BICYCLE CLUB — Meeting April 25, 7:30 p.m., Room C, CRA Clubhouse.

BONAIR FLYERS — Fly-in to Orange County Airport April 30. Call Lee Chastain, KM ext. 2055. Fly-in to Lake Havasu May 15. Registration open for ground school course. Call ext. 1111, CRA Clubhouse. Meeting May 3, 7:30 p.m., CRA Clubhouse.

BOWLING—CRA plant championship tourney April 30-May 1, May 7-8, Clairemont Bowl.

BRIDGE — Play each Friday, 7:30 p.m., CRA Clubhouse.

CAMERA CLUB — Meeting May 1, 7:30 p.m., Photo Arts Bldg., Balboa Park.

CERAMICS — Instruction Tues., Wed., Thurs., 7:30-10:30 p.m.; Wed., 10 a.m.-1 p.m., CRA Clubhouse.

CHESS — Play each Wednesday, 7:30 p.m., CRA Clubhouse.

COINEERS — Meeting tonight (April 20), 7:30 p.m., Convair cafeteria, Pacific Hwy.

FENCING — Workouts and instruction Fridays, 7:30-10:30 p.m., YWCA, 10th & C Sts.

FISHING CLUB—Meeting tonight (April 20), CRA Clubhouse. Potluck at 6:30 p.m., business session at 7:30.

GOLF — CRA tourney April 23-24, Cottonwood.

GARDEN CLUB — Annual Spring Rose Show April 24, Floral Assoc. Bldg., Balboa Park. Open to public 1-6 p.m.

HI-FI/MUSIC — Meetings second Tuesday of each month, 7:30 p.m., CRA Clubhouse.

ICE SKATING — GD skate nights Thursdays, 6:15-7:45 p.m., Mission Valley Ice Arena.

MEXICAN TOUR — Slide showing and decision on tour dates April 27, 7:30 p.m., Convair executive dining room, Pacific Hwy.

MOVIES — Reduced prices at State Theater, Euclid & El Cajon Blvd. Admission adults, $1; children, 35c.

PISTOL CLUB — Club shoot 9:15 a.m., April 24, SD Police Range, Federal Blvd. and Home Ave.

RADIO CLUB—Meeting April 21, 7:30 p.m., Harbor Drive club headquarters.

SCULPTURE — Workshop sessions Mondays, 7:30-10:30 p.m., CRA Clubhouse.

SOFTBALL — Rosters for slow-pitch and fast-pitch leagues due at managers' meeting April 27, 7:30 p.m., TV lounge, CRA Clubhouse.

TENNIS — Beginners instruction starts May 3. Call Ray Hardy, ext. 1692 KM, or Bob Herold, ext. 3392 KM.

TOASTMASTERS — Convair Toastmasters No. 3745 meet each Wednesday, 4:15 p.m., CRA Clubhouse. Dynamic Toastmasters No. 467 meet each Thursday, 5:15 p.m., CRA Clubhouse.

TOASTMISTRESS CLUB — Serra Mesa Toastmistress Club meets first and third Mondays, 7:30 p.m., CRA Clubhouse.

TRAILERS — Road Runners meet tomorrow (April 21), 7:30 p.m., Gillespie Field Clubhouse. Outing to Barrett Lake Trailer Park April 22-24.

WIVES — Potluck next Wednesday (April 27), CRA Clubhouse.

Pilots' Ground Class Offered

A private pilots' ground course will be offered all Convair people through the city's Adult Education program, announced CRA Bonair Flyers' Commissioner Glen Hemphill who was responsible for the initiation of the course.

First class of the 13-week course will be May 5, 6:30-9:30 p.m., at Midway Evening Adult School, 3249 Fordham St. Classes will continue each Thursday evening for the rest of the course. Entire cost is $5 a person.

Instructor will be Kenneth Morgan, design specialist in Electronics-San Diego advanced systems. Morgan holds FAA ground, flight, and flight instruments instructor ratings.

A minimum of 25 students is required before start of the course. All interested persons are urged to list their names through ext. 1111, KM, CRA Clubhouse.

Ann Gagnon Winner In Women's Golf

Ann Gagnon held low net score in Flight A and Clara Granat topped Flight B for the second tourney in a row at the GD Women's Golf Club's match April 9 at Tecolote course. Both were awarded individual CRA trophies.

Certificate winners in Flight A were Iris Oster and Mary Ranson, and Emma Webb and D'Ann Stenson in Flight B. Jerri Cooper was the only player to land her ball inside the circle on the 18th hole to win a golf ball.

SOFTBALL ROSTERS MUST BE IN SOON

Deadline for submitting rosters for CRA plant slow-pitch and fast-pitch softball teams is next Wednesday, April 27, Pete Beyrer of CRA reminds all managers. Final managers' meeting will be that evening at 7:30 p.m. in the TV lounge of the CRA Clubhouse, Kearny Mesa. Play will start the first week in May.

Beginners' Tennis Will Begin May 3

Tennis instruction for beginners will be given from 5 to 6 p.m. Tuesdays for eight weeks beginning May 3 on the CRA courts.

Entry fee will be $2 to cover trophy costs for an end-of-class tournament.

Registration will be limited to 24. Call Ray Hardy, KM ext. 1692, or Bob Herold, KM ext. 3392.

Many Recreation Facilities Await Record Family Use This Summer

It's picnic, campout and summer fun time again and Convair division's recreational facilities are ready to help employes and families enjoy leisure to the fullest.

CRA's popular Missile Park picnic area at Kearny Mesa already is drawing evening and weekend family crowds.

The model train is back in service on weekends after being outfitted with new electric safety latches and hydraulic brakes on all cars. The younger set also will enjoy the merry-go-round on weekends and the slides, swings, flying rings, little animal spring rides, and wading in the Tiki pool.

Tennis courts have been resurfaced and there is volleyball, ping pong, shuffleboard and horseshoes. Pool, snooker and billiard tables are available for adult enjoyment.

An innovation sure to make a big hit with the family is sale of Grade A steaks at the concession stand — and the charcoal and starter fuel for barbequeing them at 30 barbeque pits on the grounds. Hot dogs, hamburgers, cold soft drinks and beer also are available.

The picnic area is open 9 a.m. to dusk daily. The entrance is guarded and families are asked to show or state company affiliation. Gerry Starkey is park manager.

Also geared for a "big summer" is Convair's 90-acre Pine Crest resort in the Cuyamaca Mountains, where the family can picnic at tables under the trees, camp overnight or spend a whole two-week vacation.

Tents can be rented at $1 per night and charcoal and soft drinks can be purchased. There is a trailer camp area and restrooms with showers. Horseshoe, softball, ping pong and badminton equipment can be checked out.

Pine Crest is three miles from Julian along Highway 79 with its entrance opposite the Inspiration Point turnoff. Jack Clendenon is resident manager.

There is a minimal $1 daily charge for use of facilities for one or two days and 50 cents daily thereafter. Families are asked to leave most pets at home although small dogs on leash are allowed.

Convair's Gillespie Field clubhouse and facilities, which include rifle and pistol ranges and skeet and trapshooting, are popular year-round.

The 50-yard and 50-foot rifle and pistol ranges are used for .22 caliber rifle and all-caliber pistol firing. The rifle ranges are reserved for Convair Rifle Club's use the first and third Saturday mornings each month.

There are four traps on the trap range, including two that are lighted until 10 p.m. Wednesdays, and two skeet ranges. For beginners and informal shooting, there are two hand-load traps for use on the skeet ranges when skeet shooting is not in progress.

Nominal fees are charged for use of the ranges, which are open from 8 a.m. to 5 p.m. Wednesdays through Saturdays (except Wednesday evenings for trapshooting only) and from 8 a.m. to 4 p.m. Sundays. Rifles can be borrowed at the range house. Frank Marchant is resident manager.

Also at Gillespie Field, employes and their families are building 16-foot fiber glass power boats and the Sports Car Club's garage is used by members on Saturdays. The Rockhounds have lapidary facilities in use on Wednesday evenings.

TWO EARN PRIZES IN 'RABBIT SHOOT'

Randy Johnson and Ronald Houts received boxes of ammunition for placing first and second in the April 3 Easter season "rabbit shoot" for Junior Rifleers at Gillespie Field.

Bob Andrews, commissioner, presented a perpetual trophy for the junior team to Stan Berling for display in the Gillespie Field clubhouse.

Members of the junior team will have their names engraved on the trophy as they attain NRA top-rank "distinguished expert" honors. Already holding the title are John Tramposh, Richard Ellis, Johnson and David Farrelly Jr.

Ellis, Farrelly, David French and Henry Geer represented the Junior Rifleers in a .30 caliber NRA regional tournament March 20 at Camp Pendleton, firing a high 881 team total.

Individual national match course scores in the same tournament were Farrelly, 225; Ellis, 222, French, 193 and Geer, 157.

Fish Club Arranges Display For Lobby

CRA Tropical Fish Club is setting up a display tank in the lobby of CRA Clubhouse at Kearny Mesa. John Madryga, club president, Dave Hays, and Dick Rowe are in charge.

Aquarium filters, given as door prizes at the April 11 meeting, were won by Mr. and Mrs. Hays and Mr. and Mrs. Allan Infeld.

Next club meeting will be May 9 with a speaker and films on tropical fish.

Spring Rose Show Sunday

Convair Garden Club's largest event of the year, the annual spring Rose Show, will be held this Sunday, April 24, in the Floral Association Bldg., Balboa Park.

Fifty-six different classes are open to exhibitors in the rose division with displays to be entered in hybrid tea, grandiflora, and floribunda sections for either single or spray entries.

Best of show awards will go to queen of show, best three hybrid teas or grandifloras, grandiflora, three grandifloras, single floribunda, three floribundas, arrangement, corsage, children's entry.

Entries will be accepted from 7 to 11 a.m. The doors will be open to the public, free of charge, from 1 to 6 p.m.

The Floral Bldg. will be open the evening before the show from 7 to 9 p.m. for convenience of exhibitors.

Baseball Drawing To Close May 11

Second baseball drawing of the season for free tickets to Padres' home games in May will be May 13. Entries may be dropped in baseball drawing boxes throughout the plants until May 11.

All entry slips must include employe's name, division, plant, department number, shift, plant phone extension.

Tickets will be drawn for games with Vancouver, May 16-19; Tacoma, May 20-22; Tulsa, May 24-26; and Indianapolis, May 27-29.

Boxes are located at Kearny Mesa, Lindbergh Field, Stromberg-Carlson, and Electronics employe services outlets; LF engineering mail room, third floor, Bldg. 51; H. C. Medearis' office, Bldg. 3 mezz, Plant 19; and CRA Clubhouse at Kearny Mesa.

Archery Fans To See Films

A full evening of information pointed directly at archery enthusiasts is set for tomorrow (April 21), 7:30 p.m., in the Convair cafeteria, Pacific Hwy.

All General Dynamics people and their friends are invited to see movies, slide showing, and hear talks on bow and arrow hunting. Dr. George Pournelle, head curator of the San Diego Zoo, will act as master of ceremonies.

Two films, "Kodiak Country," and "Mozambique Trails," starring Fred Bear, well-known archer, will be shown by Convair's Kenneth Brass.

Capt. John Roumasset of the California Fish and Game Dept. will talk on bow and arrow hunting seasons and Doug Walker, past president of the California Bow Hunters and board member of the National Field Archers' Assoc., will show slides of bow and arrow hunting on Catalina Island and in Northern California.

CRA Archery Commissioner Al Stone said that if enough turn out and express interest, a regular tournament and meeting schedule will be set up for the Archery Club.

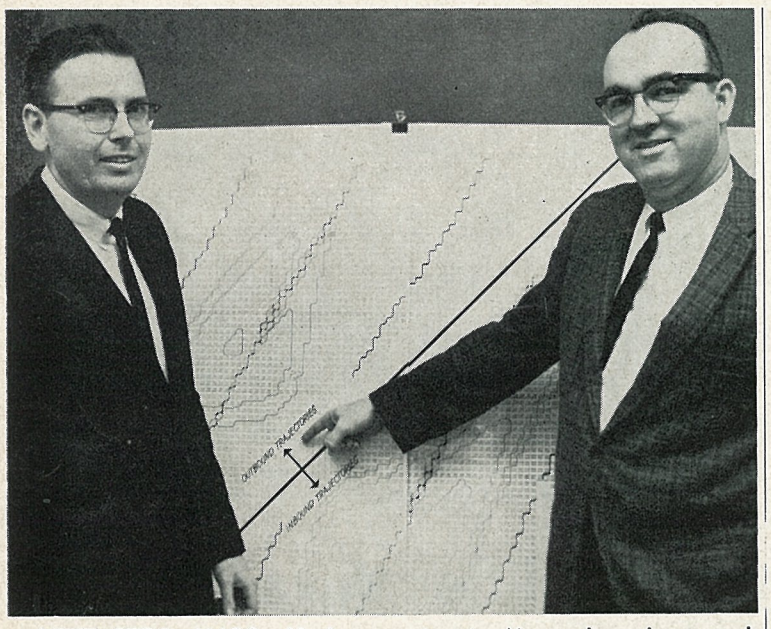
Low Price Tickets Offered For Fair

Reduced price tickets for the May 26-30 Eastern San Diego County Fair at Gillespie Field are on sale for 50 cents each at Kearny Mesa, Lindbergh Field, S-C, and Electronics employe services offices, the CRA Clubhouse, and from Joyce in Lindbergh Field, Building 51 mail room.

Ticket stubs can be deposited at time of purchase for a "500 dollar shopping spree drawing." Children under 12 will be admitted without charge.

GROUP FLYING TRIPS PLANNED

Bonair Flyers have two group flying trips planned within the next few weeks. The CRA flying club has set a fly-in to the Orange County Airport for Saturday, April 30, for brunch and a tour of the Tall-Mantz Aviation Museum. Club President Lee Chastain, ext. 2055 KM, is taking sign-ups. An all-day trip by air to Lake Havasu is scheduled May 15.



NEXT STOP: MARS—Various routes to Mars—based on such variables as time of departure and propulsion system used—are pointed out by V. A. Lee, left, and S. W. Wilson, Dept. 063-5, Fort Worth division.

A Long Journey

Even 'Express' Travel to Mars Will Take Time, Engineers Say

If you're planning a trip to Mars in the next decade or so, see Vernon Lee and Sam Wilson of Fort Worth division.

The Dept. 063-5 engineers have worked out timetables to the planet, with "fares" (energy requirements) based on how fast you want to travel.

The route will depend on a number of factors, such as: time of departure; type propulsion system used; and whether you plan to simply fly by or land and visit a spell.

If you want to stay awhile and can afford the "express" route, envisage a round trip of 1.1 to 1.5 years, counting a 10- to 50-day stopover.

But if you can only afford slow freight, take along an extra change. It'll take 2.2 to 2.8 years. This time, however, you can stay over from 2 to 18 months.

Wilson estimates that a many-staged spacecraft used on a landing mission might weigh upwards of two-million pounds. The capsule itself would weigh from 40,000 to 50,000 pounds.

"Manned missions are obviously more complicated and more costly than unmanned probes, but they also promise to produce much more information," he said.

Another basic consideration in planning the flight path is the propulsion system to be used.

High-thrust systems, based on chemical engine or nuclear engines of the Nerva type, are being considered most seriously.

"These systems create distinctive flight paths, characterized by comparatively short periods of powered flight and long periods of coasting, or 'ballistic' flight," Wilson said.

Wilson said some exotic schemes have been studied. One would use solar radiation pressure to "sail" the vehicle about the solar system.

For the immediate future, more unmanned Mariner fly-bys are on the agenda. Scientists think of manned missions to Mars in the late 1970s or 1980s.

"In all likelihood, the exploration of Mars will make use of a wide variety of flight paths and types of missions," said Wilson, "rather than only a few selected ones."

McManus Will Lead Benefits Conference

E. C. McManus, Corporate director of employe services, will be the chairman next week when the national Council on Employe Benefits holds its spring conference in Hershey, Pa.

Discussions and workshop sessions will be held on such subjects as trends in pension planning and funding, developments in fringe benefits, and furnishing fringe benefits in foreign countries.

The Council is a national organization. Membership includes corporate benefit plan administrators representing most of the major U. S. companies. McManus is a member of the board of trustees.

Fort Worth Chosen For Board Meeting

The annual meeting of General Dynamics' share owners will be held Friday morning, April 29, in the annex to the First National Bank of Fort Worth at Sixth and Lamar Streets.

This marks the first time that the annual meeting has been held in Fort Worth.

The General Dynamics Board of Directors will meet the afternoon of April 29 at Fort Worth division. The board has met here previously.

Ellis Will Chair EIA Committee

G. M. Ellis, chief of quality audit and procedures at Pomona division, has been appointed chairman of the quality assurance committee of the Electronics Industries Association.

The committee is responsible for policy coordination within EIA's government equipment panel in the technical and administrative fields of quality assurance, including quality control, inspection, quality engineering, metrology and other activities related to product effectiveness.

Ellis is a past chairman of the Los Angeles Chapter's Professional Group on Component Parts, Institute of Radio Engineers, and is a senior member of both the Institute of Electrical and Electronic Engineers and the American Society for Quality Control.

Australia Places Electronics Order

The Australian government has awarded Electronics division a contract for approximately $1 million for production of the AN/GRC-106 single sideband high frequency transceiver.

The equipment will be produced at Rochester and will be used by the Australian Army.

Lightweight and rugged, the AN/GRC-106 is digitally controlled and operates on any one of 28,000 discrete frequencies spaced 1 kilocycle apart in the 2 to 30 megacycle range.

NASA 990 'Flying Laboratory' Given New Instrumentation

NASA's 990 jet aircraft, first Convair-built 990 which was transformed into a flying laboratory at the San Diego plant a year ago, was in-plant again last week for installation of meteorological instrumentation.

Experimental department did the modification for the University of Michigan under contract to NASA Goddard Space Center. The instrumentation will be used in a series of flights during launch of the Nimbus C satellite scheduled late this month.

Supervising modification at Convair's Lindbergh Field plant were Harold Reed of Goddard Space Center and Dr. Harold Allen and Orest Chapelsky of the University of Michigan. E. F. Kotnik of the Convair 880/990 program office coordinated the project.

The NASA 990 carried scientists in a chase of last May's solar eclipse and the Ikeya-Seki comet last fall to gather scientific information. The plane is based at NASA's Ames Research Center, Moffett Field, Calif.

Biomedical Monitor Device on Display

San Diego County high school and college students saw a heart model used in demonstrating a Convair-developed remote biomedical monitoring device in a Convair division exhibit last month at a Health Careers Conference in the Community Concourse exhibit hall, San Diego.

Action of the heart model was seen on a large-screen oscilloscope. Personnel from life sciences Dept. 592-0 manned the exhibit.

People Mobility

Interdivisional Transfers

G. S. Crystal has been named Corporate administrator — salaried compensation, reporting to J. L. Budros. He succeeds B. D. Teague, transferred to Stromberg-Carlson.

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(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the Company.)

DAVID B. TICE (1962) from Convair division to senior draftsman (mechanical) Electric Boat division; **GORDON A. BLADE JR.** (1956) from Convair to estimating, Fort Worth division; **BILLY B. MICHAEL** (1949) from Convair to F-111 logistics support, Fort Worth; **ERVIN L. VICK** (1953) from Electronics, Rochester to F-111 logistics support, Fort Worth; **HALE W. WAGNER** (1953) from Fort Worth to logistics, Electronics, Rochester; **LOUIS A. GARRETT** (1952) from Convair (Alamogordo) to F-111 tests, Fort Worth; **BILLY J. BALLENTINE** (1958) from Convair (Alamogordo) to tooling, Fort Worth; **CHARLES A. GOEB JR.** (1953) from Electronics, San Diego to marketing, Electronics, Rochester.



FULL-FLEDGED MECHANICS—First group of service mechanic trainees to complete 26-week training course at Convair Service Center are W. T. Dye, J. J. Douthit, B. F. Byrd, W. T. Cole, D. L. Velliquette, receiving certificates from E J. Huntsman, Convair Service Center manager. At presentation were J. D. Tate, chief of quality assurance, and L. F. Lau, chief of operations.

First Contingent of Six On-Job Trainees End 26-Week Stint in Service Center

Six young men in Convair Service Center's on-the-job training program for unskilled workers are winding up the 26-week training program this month as first to gain their service mechanic ratings.

W. T. Dye and J. J. Douthit completed their initial training the first of the month. J. L. Walsh and B. F. Byrd finished on April 8 and D. L. Velliquette and W. T. Cole will be through the program April 25. All are assigned to production areas in the Convair Service Center.

The graduates were the first to enter the program last September at the time General Dynamics contracted for the training program with the San Diego Mayor's Committee for Jobs, Inc., under provisions of the federal Manpower Development and Training Act.

The Service Center still has around 50 trainees in various stages of training. Others are being added at a rate of five every two weeks for the time being.

Four of the Convair trainees also completed their training—in sheet metal work—within the last month and several others will finish their milling machine indoctrination in a few weeks. Those finishing the 16-week program in Dept. 001 (sheet metal) are D. W. Micelli, J. G. Peters, L. W. Rust, and W. R. Miller.

Convair 640 Flying Demonstrations For European Airlines

First Convair 600 to be converted for a European operation is going through its paces this week for airlines in France, Sweden, and Spain.

The plane, a Convair-Liner 340 modified to the 640 turbojet version for Martin's Air Charter of the Netherlands, made its first flight the end of last week. Convair is using the plane in a series of demonstration flights in Paris, Stockholm, and Madrid before the craft goes into passenger service April 23.

Martin's Air Charter is the first European airline to purchase a 600 modification kit. Convair delivered the kit in February and modification to the 640 version powered by Rolls-Royce Dart engines was done by Aviolanda-Woensdrecht of Holland.

Simple Mechanism Developed For Testing Contamination

Two Convair division quality control engineers have devised a simple mechanism for measuring contaminants in cryogenic liquids and gases that provide faster and more reliable measurement than methods previously used.

The new system was developed by Don Menard and Ben Pesta of Dept. 141-2 at Kearny Mesa. Their sampler consists of two stainless steel sections that hold a woven wire-mesh filter screen and a standard back-up screen, sealed together with a neoprene O-ring and bolted. The sampler is attached directly to a sampling port or gas line at the storage facility and a certain amount of liquid drained off, passing through the sampler.

The mechanism is then removed and returned to the laboratory where the screen is weighed on highly sensitive scales. As the weight of the screen itself is known, the additional weight determines the amount of contaminant removed. The entire operation takes less than an hour.

Filter screens are made in eight different texture ratings to capture particles of different sizes, as desired. The screens can be cleaned and reused indefinitely.

Previously, contaminant measuring systems involved seven different procedures and a minimum of eight hours work, with the hazard of introducing quantities of the liquid under test into the laboratory.

Menard said the new system has been used primarily thus far with liquid nitrogen and liquid oxygen tests, but can be used in sampling liquid hydrogen, liquid helium and even hydraulic fluids. The idea has been passed along to the Air Force and to NASA and Menard expects wide usage in industry.

The sampler has been used for several months at the Eastern Test Range and the prototype is now in use at the Western Test Range. Twelve others are being produced for use at other Convair sites.

Careful control of contaminants in fuel is particularly important in space launch vehicles, as they can produce a "sand-blast effect" and enlarge openings of small nozzles in the vehicle systems, or cause valves to stick.



NEW TECHNOLOGY — Don Menard, left, and Ben Pesta display improved system they devised for sampling contaminants in cryogenic fluids and gases. Device involves reusable metal screen.

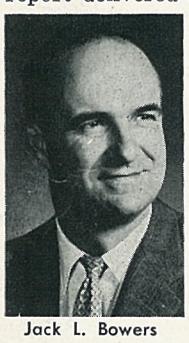
SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

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Expansion Of Research Is Planned

Future plans of Convair division were outlined and a progress report delivered by Jack L. Bowers, Convair general manager, at the Convair Management Club meeting last week in Balboa Park Club.



Jack L. Bowers

Significant activities are planned in manned space, ICBMs and aircraft. Space activities will include Apollo applications, recoverable boosters and maneuverable re-entry systems. Aircraft activity includes continuation of the Convair 600 program, C-141 and C5A aircraft subcontracts and other work which will establish new strength in aircraft design leading to future prime programs.

He also discussed the new venture in hydrofoil boats.

Bowers said the division will expand its new product research and development program during the next year in these key market areas.

Candidates for 1966-67 Management Club offices were introduced. They are:

President — M. L. Sweeney, Dept. 838-1, current first vice president; R. M. Williams, Dept. 586-0, current education committee chairman; Claude C. Campbell, Dept. 984-4.

1st vice president — Gary Gonlag, Dept. 194-0; Gerry K. Cox, Dept. 001-0.

2nd vice president — Harold Hahn, Dept. 170-3; Lon Franklin, Dept. 141-0.

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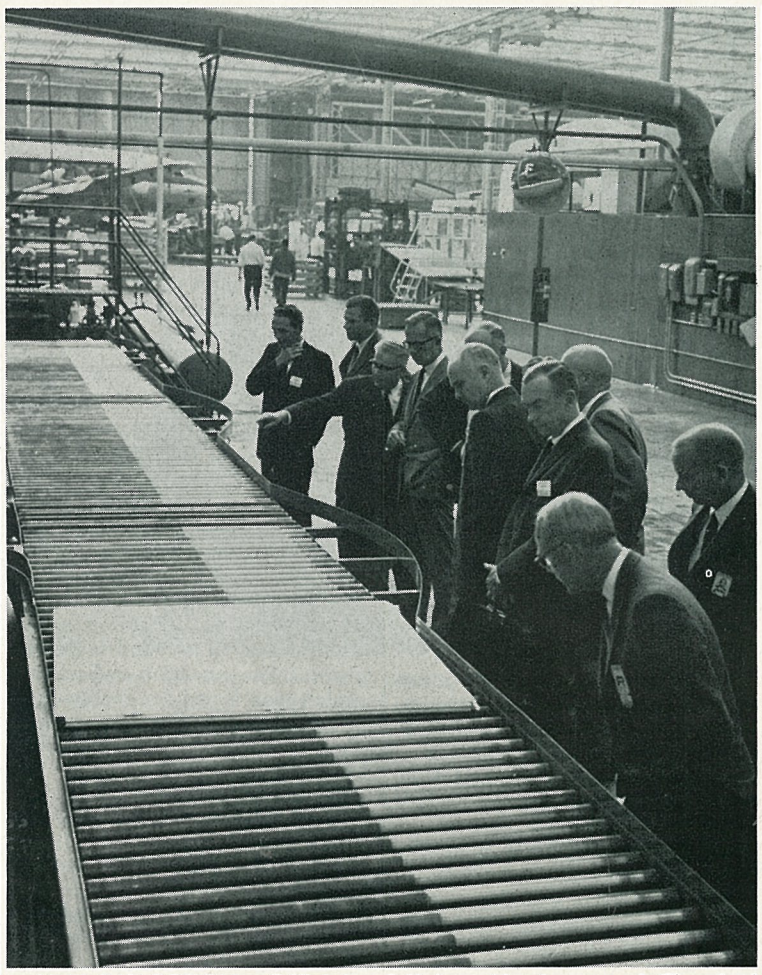
Brown to Head C-141 Program

James A. Brown, former Convair manager of preliminary design, has been named C-141 empennage program manager, succeeding R. W. Miller, now program manager for the C-5 heavy logistics transport.

Both report to J. M. Adamson, Convair manager of Lockheed subcontracts (Dept. 055-0). Adamson is directly responsible to W. L. Van Horn, Lindbergh Field operations plant manager.

Brown joined Convair in 1952 in engineering and held positions

(Continued on Page 2)



LINE INSPECTION—Officials of Kaiser Aluminum and Chemical Sales, Narmco, and Hexcel Products tour Convair's landing mat production line during April 21 familiarization of major subcontractors on program.

Chief Subcontractors Inspect Mat Program

Company officials of major subcontractors in the production of airfield landing matting for the U.S. Army met in San Diego last month for familiarization with Convair aspects of the program.

Delegates represented Kaiser Aluminum and Chemical Sales, Inc., Oakland, Calif., prime contractor; Narmco Division of Whittaker Corp., Costa Mesa, Calif., and Hexcel Products, Inc., Berkeley, Calif.

Hexcel Products is furnishing the honeycomb cores and Narmco, the adhesives, for the landing mats which are being fabricated on Convair's assembly line. Kaiser Aluminum supplies all the aluminum material.

Jack L. Bowers, Convair general manager, and W. L. Van Horn, Lindbergh Field plant manager, hosted the group at briefings and an inspection of Convair's production facility.

C. L. Jackson, Convair airfield landing mat program manager, outlined development of Convair's matting program during the last four years and showed films of previous matting tests at Vicksburg Test Center.

At the San Diego-located plant for the April 21 visit were, from Kaiser: R. E. Perry, project manager-landing mat program; J. W. Watson, vice president and general manager of the Mill Products Division; W. J. Edmunds, manager of supply and distribution.

Narmco officials were R. E. Hughes, executive vice president, and V. W. Jaenicke, manager of manufacturing. Hexcel Products representatives were W. S. Powell, president, and R. H. Horning, vice president of marketing.

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First mats which will be incorporated into a landing field for actual use by Air Force craft are rolling off Convair's semi-automated assembly line at Lindbergh Field plant.

Initial mats produced under a contract from Kaiser Aluminum Chemical Corp., Oakland, Calif., will go to Dyess AFB, Texas, for tests under aircraft operations. They will be laid as a part of a runway and evaluated during landings and take-offs.

The first lot of the new-type aluminum honeycomb core mats fabricated on Convair's modified line now are awaiting qualification tests at the Vicksburg (Miss.) Test Center. The U. S. Army Waterways Experiment Station, Vicksburg, is acting as contracting agency for the Air Force. Kaiser is prime contractor with Convair subcontractor for producing 5,000,000 square feet of portable airfield matting.

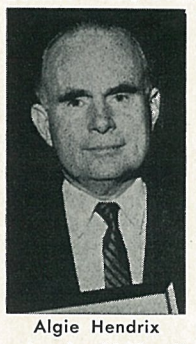
Convair is using Kaiser-furnished material to turn out the lightweight mats which weigh only four pounds per square foot.

The semi-automated line, modified for the new-type mats, incorporates bonding and welding equipment and processes developed by Convair for production of landing field matting for the

(Continued on Page 2)

'Management Upgrade' Subject For Next Mgt. Club Speaker

"Management upgrade to meet the challenge of today and the future" will be the theme of the Convair Management Club's May 17 meeting in the Hilton Inn.



Algie Hendrix

Algie A. Hendrix, vice president - industrial relations for General Dynamics, will be guest speaker.

Hendrix joined General Dynamics in 1963 after 30 years with General Motors Corporation during which he served as coordinator of management development for the Corporation, manager of the AC Spark Plug division and personnel director for both the Buick-Oldsmobile-Pontiac assembly division and the (wartime) Eastern aircraft division.

He earlier had served as director of employment and safety and assistant director of personnel for the Ternstedt division and as chief inspector for the Fisher Body division.

The meeting will be sponsored by the industrial relations department and will be open to Management Club members only.

Tickets are $2.50 and can be obtained from club boosters. Social hour will be at 5:30 p.m. with roast half-capon dinner at 6:45. Door prizes will be a portable television set, transistor radios and binoculars.

Atlas, Centaur Mated For Lunar Mission

Atlas 290D and Centaur 1D, the Atlas-Centaur 10 mission vehicles, have been mated at Complex 36A at Cape Kennedy for use in Mission A within the next few weeks. Mission A is a NASA designation for the United States' first attempt to land a Surveyor spacecraft on the moon.

The AC-10 vehicle will employ continuous-powered ascent from launch until injection of the Surveyor into lunar transfer orbit about 11½ minutes in flight. The Surveyor SC-1 spacecraft is the first of seven engineering test models scheduled for launch.

A television camera on SC-1 will photograph the lunar surface after landing. SC-1 has instrumentation for evaluation of both its flight and landing performance, radio and radar transmitters and receivers, signal processing equipment, sun and star sensors and a solar-panel system.

SC-1 is scheduled to land on the moon 63 hours after launch. It is equipped with three landing legs with hydraulic shock absorbers and three crushable aluminum honeycomb landing blocks. It will use retro and vernier engines to slow its descent and will have radar controlled landing.

AC-10 will have a "launch window" when the earth and moon are in proper relationship for the Surveyor to intercept the moon on direct ascent trajectory.

Both the Atlas and Centaur will carry performance data instrumentation for further evaluation of their already proven capability of injecting a payload into lunar transfer trajectory.

Gerald W. Lucas is AC-10 project engineer and Robert Benzwi is chief of payload integration. Daniel Sarakon will be launch conductor.

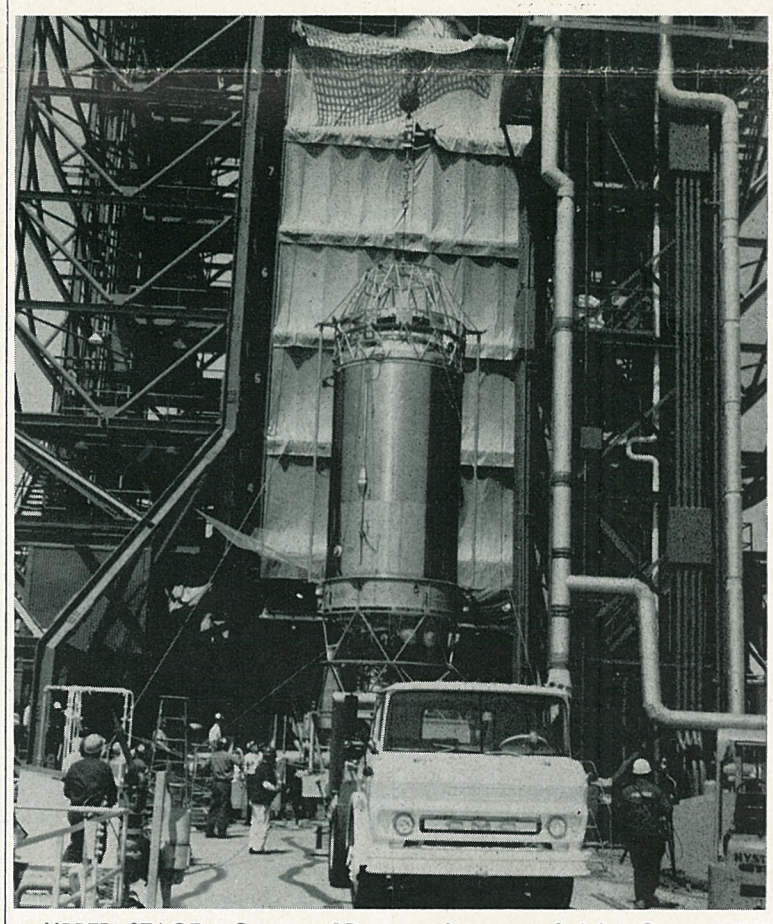
After the Atlas booster and sustainer engines power the first phase of flight, Centaur engines are to have a single burn of more than seven minutes.

Centaur will then separate from the Surveyor and will be turned, with "blowdown" of its residual propellant placing it in a lower orbit. Centaur will bypass the moon as Surveyor lands.

Atlas and Centaur performance data will be received at Cape Kennedy and down-range stations at Bermuda, Antigua and Ascension islands, Pretoria, South Arrica, and at one ship in the Atlantic.

Surveyor tracking and telemetry coverage will be from Goldstone, Calif.; Johannesburg, South Africa; and Canberra, Australia.

(Continued on Page 2)



UPPER STAGE—Centaur 1D second stage of Atlas-Centaur 10 vehicle is hoisted into position at Complex 36A at Cape Kennedy. Part of Atlas 290D booster can be seen in background. AC-10 will launch a Surveyor spacecraft for lunar landing.

'Tiger Team' Checking SLV-3 Prior to Gemini Target Shot

Convair division's Atlas SLV-3 No. 5303 will be in the nation's television spotlight May 17 when it lifts a modified Agena-B into space as a target vehicle for Gemini 9 astronauts Thomas Stafford and Eugene Cernan to use in in-space docking maneuvers.

Thomas J. O'Malley, veteran Convair SLV launch director, will be in charge of the Atlas-Agena launch from Cape Kennedy's Complex 14. Launch is scheduled for 7 a.m. California time.

Stafford and Cernan are to ride into space 99 minutes later atop a Titan II. If all goes well, Cernan is slated for a record 2½-hour walk in space. He will wear a special backpack maneuvering system to steer himself for a series of experiments that are to include taking close-up photos of the target vehicle.

E. R. McFadden, Convair program manager for Gemini target vehicle, was at NASA-Houston April 21 for a technical review in preparation for the Atlas-Agena launch. Jack Miller is Complex 14 site manager.

(Continued on Page 2)

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between May 1 and May 15.

Forty-year: Dept. 031-0, W. R. Panke.

Thirty-year: Dept. 150-0, A. E. Andress; Dept. 250-3, N. F. LaGamma.

Twenty-five-year: Dept. 031-0, A. C. Oehler; Dept. 041-0, R. W. McDaniel; Dept. 112-0, R. K. Hall; Dept. 149-0, L. C. Stuckey Jr.; Dept. 149-2, R. H. Brent, R. P. McNally; Dept. 401-9, A. J. Martino; Dept. 420-1, I. G. Rooder; Dept. 511-1, W. A. Heitzman; Dept. 780-2, G. E Mayer; Dept. 830-0, J. N. McPheeters; Dept. 834-1, L. H. Allen; Dept. 835-5, K. S. Kelly; Dept. 953-2, W. S. Nader; Dept. 957-0, V. T. Miller.

Twenty-year: Dept. 015-0, G. C. Johnson; Dept. 016-0, O. G. Anderson; Dept. 019-0, H. J. Wallendorff; Dept. 300-3, K. C. Stipp; Dept. 758-0, B. T. Medearis; Dept. 818-2, R. E. Weber; Dept. 989-0, L. W. Howerton.

Fifteen-year: Dept. 001-0, J. M. Cook; Dept. 019-0, J. O. Lovell; Dept. 041-0, H. T. Chambers; Dept. 059-3, C. M. White; Dept. 142-1, P. G. Perez, B. Scott Jr.; Dept. 195-0, R. E. Fetterly; Dept. 250-6, J. C. Sanchez; Dept. 400-6, F. E. Cooper; Dept. 401-5. A. C. Garegnani; Dept. 507-0, T. E. Williams; Dept. 565-2, D. J. Olson; Dept. 744-0, T. F. Silvernail; Dept. 832-2, D. A. McNeese; Dept. 833-1, R. Badilla, H. W. Thompson; Dept. 850-3, C. W. Glasgow; Dept. 964-5, G. J. DeLong; Dept. 957-0, G. J. Hendrix; Dept. 978-0, F. Wallace Jr.

Ten-year: Dept. 041-0, C. Varela; Dept. 113-0, C. D. Small; Dept. 123-0, M. G. Ramstad; Dept. 130-1, E. A. Rohde; Dept. 131-5, R. C. Morrison; Dept. 142-1, Jerome Brame, J. L. Koskinen, W. J. Steffen; Dept. 143-2, R. E. Brown; Dept. 143-3, N. B. Harris; Dept. 146-0, L. A. Milton; Dept. 193-3, N. J. Burgess; Dept. 250-1, A. L. Weaver; Dept. 250-3, R. P. Martinez, G. L. Temple; Dept. 250-5, P. W. Deatt, J. F. Hunter Jr.; Dept. 250-6, E. Creccy; Dept. 300-2, C. R. Jones; Dept. 300-3, A. R. Phelps, T. Tafoya.

Dept. 401-5, C. J. Reich; Dept. 491-0, E. L. Christian; Dept. 506-5, V. M. Schwoerke; Dept. 524-3, A. K. Laudenslager, J. H. Love; Dept. 543-3, J. N. Clarke; Dept. 562-1, G. G. Shafer; Dept. 563-0, J. Handrus; Dept. 574-3, A. Flores; Dept. 578-3, B. P. Wheat; Dept. 584-3, R. I. Cross; Dept. 715-0, W. H. Galloway; Dept. 731-0, R. L. McDonald; Dept. 733-0, V. F. Roslee; Dept. 756-0, S. E. Bigler, W. H. Church.

Dept. 780-1, M. A. Gadeke, L. M. Heidrich, M. Mitts. G. H. Runnels; Dept. 780-2, C. W. Heath, W. J. Kopasek; Dept. 780-3, R. E. Pullen; Dept. 780-4, E. A. Ford; Dept. 819-0, J. P. Maher; Dept. 835-5, E. E. Hansel; Dept. 845-0, F. R. Lucas; Dept. 953-0, I. H. James; Dept. 953-2, T. S. Klanicza, R. F. Maxey; Dept. 957-0, P. I. Ferguson; Dept. 962-3, R. S. Myers; Dept. 970-0, A. Corral; Dept. 973-3, W. B. Haney; Dept. 974-4, L. Kulhanjian; Dept. 979-3, M. F. Nicodemus Jr.; Dept. 979-4, R. E. Deist; Dept. 987-0, R. R. Lewis, M. L. Stanley, R. C. Subido; Dept. 988-4, J. G. Wren; Dept. 988-8, E. M. Hopper.

ELECTRONICS

Fifteen-year: Dept. 68540, A. R. Evans; Dept. 69880, L. N. Lawhead.

Ten-year: Dept. 64780, D. V. Hill; Dept. 66830, L. M. Corbett; Dept. 68570, B. G. Anderson; Dept. 68590, J. R. Taber; Dept. 75870, A. L. Smith Sr.

STROMBERG-CARLSON

Fifteen-year: Dpt. 8030, P. S. Russell.

Ten-year: Dept. 8110, A. M. Barnise; Dept. 8810, M. Nelson.

Awards

CONVAIR

Employe Suggestion awards approved for the week ending April 8.

Dept. 015, M .E. Long; Dept. 019, G. G. Grantham; Dept. 041. I. D. Howarter: Dept. 141-4, J. T. Asprion, R. Kulhavy; Dept. 143-2, D. S. White; Dept. 143-3, R. R. Reekers; Dept. 250-1, G. S. Brooks; Dept. 250-2, C. J. Kruk; Dept. 420-1, L. W. Raper; Dept. 491-2, T. C. Smith, T. L. Woodin; Dept. 509-1, L. E. Kopp; Dept. 780-1, S. A. Jones; Dept. 833-2, R. A. Gilstrap; Dept. 838, W. J. Kelly Jr.; Dept. 964-2, R. M. Mueller; Dept. 969-3, J. C. Lutz.

Employe Suggestion awards approved for the week ending April 15.

Dept. 002. E. L. Zimmerman; Dept. 015, L. M. Persing, H. B. Wilson (three awards); Dept. 019, B. C. Lovelady, H R. Roeser; Dept. 024, R. E. Cloud; Dept. 041-0, J. L. Rinner Jr.; Dept. 115. A. Reiter; Dept. 141-2, W. J. Knox; Dept. 759-0, G. W. Stacy Jr.; Dept. 833-1, L. Rieder; Dept. 836-1, C. D. Duncan, E. W. Fenwick; Dept. 957-0, E. J. Bryant, G. H. Slater: Dept. 973-3, J. R. Mitchem; Dept. 985-3, I. M. Swaim; Dept. 985-6, J A. Bentley.

Employe Suggestion awards approved for the week ending April 22.

Dept. 566, J. A. Coutts; Dept. 759, G. D. Lundquist; Dept. 780, J. A. Vierhus; Dept. 957, J. Fodor, R. Lucas: Dept. 972, R. L. Robinson; Dept. 989, L. L. Ripley, E. E. Senior, W. H. Weatherby, J. D. Willingham (two awards).

Births

CONVAIR

FRENCH — Daughter, April Anne, four months, adopted April 15 by Mr. and Mrs. Marvin L. French, Dept. 588-3.

KELLEY—Son, Dale B. Jr., 6 lbs., 10¼ oz., born April 9 to Mr. and Mrs. Dale B. Kelley, Dept. 123-0.

Deaths

CONVAIR

COX—Robert E., Dept. 101-5. Died April 20. Survivors include wife, Lois.

General Dynamics News

Published by General Dynamics Corporation, One Rockefeller Plaza, New York, N.Y. 10020.

Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

In-Plant Training

ORIENTATION

NEW EMPLOYES — Educational services staff. Lindbergh Field, ext. 491. Bldg. 14 auditorium, Tuesday, May 17, 8 a.m. and 4:30 p.m. Kearny Mesa, ext. 1931. Bldg. 17, Room 7, Monday, June 6, 8 a.m.

PROFESSIONAL/TECHNICAL

AIRPLANE MECHANICS (On-the-Job Training) — Eight hours per day, 26 weeks, Lindbergh Field, Bldg. 3. Coordinator, Wayne Turner, ext. 491, Lindbergh Field.

PLASTIC FABRICATION (On-the-Job Training) — Lindbergh Field. Eight hours per day, 16 weeks. Jan. 20-June 10. For information call Wayne Turner, Lindbergh Field, ext. 491.

RELIABLE ELECTRICAL CONNECTIONS — Educational services staff. For information and quota call ext. 1931, Kearny Mesa. Weekly 7 a.m.-3:45 p.m., Bldg. 17, Room 10, Kearny Mesa.

AFTER-HOURS CLASSES

BASIC BLUEPRINT READING—Hal Rubin, in cooperation with San Diego City College. 14 weeks, 3:45-6:45 p.m., Wednesdays, starting May 11. Registration Bldg. 14, Room 8, Lindbergh Field. For information call Wayne Turner, LF ext. 491, or Hal Rubin, KM ext. 1931.

CRYOGENIC ENGINEERING — Karl Leonhard; planned for Kearny Mesa when sufficient interest is shown. Prerequisites: minimum of 3 years toward BS degree or 5 years applied engineering experience. For reservations, call Martha, KM ext. 1931.

Invention Disclosures

CONVAIR

BARR—L. A., Dept. 581-1. Compensated Recordings for the Hard of Hearing.

RUDIS—J. T., Dept. 510-0. Centerbody Thurst Reverser.

SLYSH—Paul, Dept. 542-0. "Ratio" Slender Boom Structure.

WOLGIN—Aaron, Dept. 592-0. A Technique for Limiting Fluid Rise in a Capillary Tube.

YAGER—E. K., Dept. 507-0. A Pressure Transducer for Cryogenic Application.

Retirements

CONVAIR

ADAMS — Forrest O., Dept. 319-0. Seniority date Aug. 6, 1956, retired Jan. 16.

COBB — William E., Dept. 673-0. Seniority date May 5, 1954, retired Jan. 16.

DELAFONT — W. J. Sr., Dept. 250-1. Seniority date Jan. 14, 1957, retired April 12.

FINK — A. W., Dept. 143-2. Seniority date June 23, 1959, retired April 17.

KRAY — G. R., Dept. 250-4. Seniority date March 13, 1958, retired April 15.

LAVERENTS — S. W., Dept. 964-3. Seniority date Sept. 11, 1941, retired April 7.

PUTNEY — L. W., Dept. 149-2. Seniority date Aug. 1, 1940, retired April 15.

Personals

Our sincere appreciation goes to all of the many Convair friends for the flowers, cards, expressions of sympathy, and kindnesses received at the death of our wife and mother.

W. T. Dorrance, Dept. 506-0, and sons, William, Jerry, and Gary.

* * *

I wish to extend my sincere thanks to my Convair friends, especially those in Dept. 146-4, for the flowers and expressions of sympathy received at the death of my brother, George.

John H. Eldridge and family. (Dept. 146-4)

* * *

The family of George Walter Koskela expresses gratitude for the many flowers, contributions and kindnesses extended to us and to his memory by his friends and co-workers.

Ailie M. Koskela (Dept. 780-1) and daughters, Verna Meloche and Arlette Sieckman.

* * *

We wish to express sincere thanks to our Convair friends for their expressions of sympathy at the recent death of my wife.

Milt R. Parrish, Dept. 143-5, and family.

* * *

We wish to express our sincere thanks to the friends of Michael Wiencek for the beautiful flowers sent at his death.

Mrs. Wiencek and family.

Brown to Head C-141 Program

(Continued from Page 1)

of senior thermo group engineer and chief of technical analysis before advancing to chief, and then, manager of pre-design. He was on the project staff of product design (Dept. 514-0) before his current assignment.

Miller had headed the C-141 empennage program the last two years, taking over from Adamson. Before that, he was project engineer on the program from its beginning in late 1961.

Factory operations on the C-5 will be under E. D. Robinson. N. P. Pearson continues to direct C-141 empennage production.

Others assigned to support of the C-5 and C-141 programs are D. R. Stewart, contracts and commercial sales; B. J. Neal, finance; R. J. Schulte (C-5), research and engineering; J. M. Rogers, material; W. B. Moyer (C-5) and J. M. Cooper (C-141), LF administration and control; O. L. Hunley, LF tooling; J. J. Swarts, LF reliability control.

Expansion Is Planned

(Continued from Page 1)

Financial secretary — Ray Mendoza, Dept. 130-6; Arch Rambeau, Dept. 210-1.

Recording secretary — L. I. "Slim" Solheid, Dept. 127-0; A. R. Mosco, Dept. 195-3.

Treasurer — Jay Mumford, Dept. 953-0; Vern Pieters, Dept. 191-0; S. W. Bobrowski, Dept. 140-1.

Three-year board members (two to be elected) — Roy Gilmour, Dept. 250-2; George Shumway. Dept. 565-2; Paul Gelles, Dept 141-2; Richard Peck, Dept. 103-0; Art Ratz, Dept. 847-2.

Two-year board (two to be elected) — Eric Herz, Dept. 542-2; L. H. "Chick" Allen, Dept. 834-0; D. E. Anderson, Dept. 780-4; R H. Nicholson, Dept. 956-0; Mike Alianelli, Dept. 300-3.

One-year board (three to be elected) — William S. Nader. Dept. 059-0; Tom Wied, Dept. 110-0; Mel Nunn, Dept. 553-2; D. D. Dimmitt Jr., Dept. 132-1; George Koulaxizes, Dept. 956-0; C. E. Reid, Dept. 595-0; Don Ruder, Dept. 964-4.

Ballots are to be returned by May 12. Winners will be announced at the May 17 meeting and installed in June.

Ten Management Club members were honored for cost reduction projects approved in March saving the division $1,648,483.

O. C. Priest of Dept. 964-4 received a desk pen set for highest savings of $385,200 and R. J. Waller of Dept. 170-9, a special plaque for $291,607 in savings.

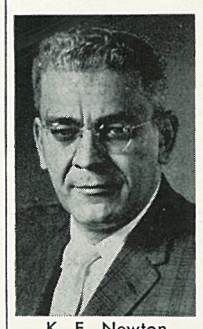
Priest's award was for a multiple purpose engineering order and Waller's for telephone equipment reduction. Both also will receive dinners for two at a restaurant of their choice in the San Diego area.

Others receiving plaques, their department numbers, and estimated savings are: A. E. Andress, 101-0, $200,905; John S. Steibel, 978-1, $181,502; R. G. Roscoe, 142-2, $145,546; S. Y. Johnson. 520-1, and J. D. Peterson, 578-5, $125,133; G. A. Grossaint, 400-0 $109,784; Lemoin Cox, 832-1. $106,636; and R. E. Bruce, 403-3, $102,150.

Each of the 10 received a complimentary dinner ticket for the meeting.

Newton Named Cape Manager

Kenneth E. Newton has been named Convair division manager of operations at Cape Kennedy.



K. E. Newton

He will be responsible for all Convair operations at the Eastern Test Range, including checkout and launch of spacecraft and spacecraft boosters.

He reports to Grant L. Hansen, vice president of launch vehicle programs, and replaces B. G. MacNabb.

Newton previously served as Convair manager of operations at ETR from July 1963 to April 1965 before leaving the company for a position with Aerospace Corp. at the Cape. He was Convair's WTR operations manager at Vandenberg AFB in 1962-63.

He first joined General Dynamics in 1948 at Daingerfield, Texas, as an electronics instrumentation engineer. After joining the company's Atlas project in 1955, Newton served as a test conductor at Sycamore Test Site and later as chief test conductor at Cape Kennedy.

San Diego Business Leaders Tour Plant

About 75 key San Diego area business and professional men were guests of Convair division April 20 for a tour of Kearny Mesa facilities.

Progress in Ocean Data Program Under Review

Convair's ocean data station program was reviewed in all its aspects the middle of last month by F. D. Jennings, head of the Physical Oceanography Program of the Office of Naval Research's Ocean Science and Technology Group.

Convair has been developing ocean data-gathering buoy prototypes over the last four years under contracts from ONR.

Jennings, chairman of the ONR guidance committee which is responsible for monitoring the buoy program and one of the foremost leaders in the country in development of new data acquisition methods in oceanography, met for a series of technical meetings with Robert Devereux, Convair ocean data station program manager, and members of his staff. Ken Samples, Stan Uyeda, and Ralph Kosic for an overall presentation on the progress of buoy development. Special emphasis was directed to the status of studies on meteorological sensors and digital data acquisition equipment to be installed on both of the Convair buoy prototypes.

He also answered questions on the general subject of world-wide data acquisition, including acquisition at sea, in a round-table discussion. The question-and-answer session was taped for inclusion in a documentary film being prepared by Convair on its buoy program.

Convair's completed buoy prototype, "Bravo," has been involved in sea tests off the Florida coast since fall of 1964. It withstood the hurricane season during its first sea trials, then was relocated in the axis of the Gulf Stream last spring. "Bravo" remained on station for nine months, gathering more information than ever acquired from an anchor station. Data was telemetered all during hurricane Betsy. The buoy now is being readied for deep-water tests. Later this summer it will be moored in waters 15,000 feet deep off Bermuda for measurement of mooring tensile loads and determination of the effect of winds, waves, and currents upon the buoy's drifting motion at the end of its cable.

The second prototype, "Alpha," is being outfitted at San Diego for a series of tests off the California coast. Objectives will be to study behavior of the energy conversion equipment inside the buoy under known conditions of electricity demand, and to evaluate the suitability of the buoy as an environment for the electronics equipment it will eventually contain. Later, oceanographic and atmospheric data will be transmitted from the buoy to the mobile ground station over distances up to 3,000 miles by short-wave radio, using the prototype digital oceanographic data acquisition system.

'Tiger Team' Checks SLV-3 For Launch

(Continued from Page 1)

A 13-man Convair "Tiger Team" will begin going over the SLV-3 at the Cape tomorrow in a critical evaluation to provide an "extra degree of assurance" that the vehicle will fulfill its mission.

James Ball will be team captain. Other team members will be Daniel Gray, A. G. Haury, Howard Newcomb, Robert Vogel, Harry Harper, Robert Packer, George Jerahian, Jack Taylor, William Garcia, James Prescott, A. E. Gloyer and William Linder.

The team earlier this week made a similar review of Atlas SLV-3 No. 5601, which is to launch the Orbiting Geophysical Observatory payload.

Convair Host For ATA Meet

Convair will host the 1966 Air Transport Association's Convair-Martin Maintenance and Engineering meeting next week (May 10-12) at the Catamaran Motor Hotel in San Diego.

R. L. Kollman, director of maintenance of Lake Central Airlines, will chair the conference. Over 100 representatives of airlines operating Convair and Martin twin-engine aircraft are expected to attend.

Included will be delegates from airlines which are local and regional members of ATA and several other non-member local and trunk airlines.

A general forum discussion on the maintenance, engineering, operational experience with Convair-Liner aircraft will be on the agenda.

Besides Convair and Martin sponsorship, the meeting is supported by principal suppliers of vendor equipment and overhaul agencies.

Landing Field Mats Scheduled For Trial at Dyess AFB, Texas

(Continued from Page 1)

Marine Corps under a Navy contract over two years ago.

The present line is shaped like a reverse "S." Aluminum top and bottom skins, cut to size, are hung on a monorail which carries them through an alkaline clean booth for pre-cleaning. They go next to the corner welder which welds four edges at the corners of one skin to form the pans. From there, the pans go to the large welder which automatically welds the edges to the four sides at one time.

Pans and top skins are carried by monorail through acid etching to a conveyor where cores are placed in the pans between sheets of adhesive. Top skins are machine located on top of the pans and tack welded in place.

Next major step is bonding of the assembled mats in one of three large bonding presses. Then, another automatic welding machine secures the top skins.

The mats are carried by roller conveyor to the potting stations where adhesive is injected between the edge members and core for complete attachment of the edge rails.

Mats then swing around the second curve of the production line to the "curtain coater" for anti-skid coating and on through the paint booth and dry ovens. Completed mats are delivered off the line to a stacker which stacks them on a pallet for shipping.

C. L. Jackson, Convair's airfield landing mat program manager, said that airstrips of the present type of mats can be laid in less than three days. Fastened together, the mats provide a solid, smooth landing field over any type of soil surface.

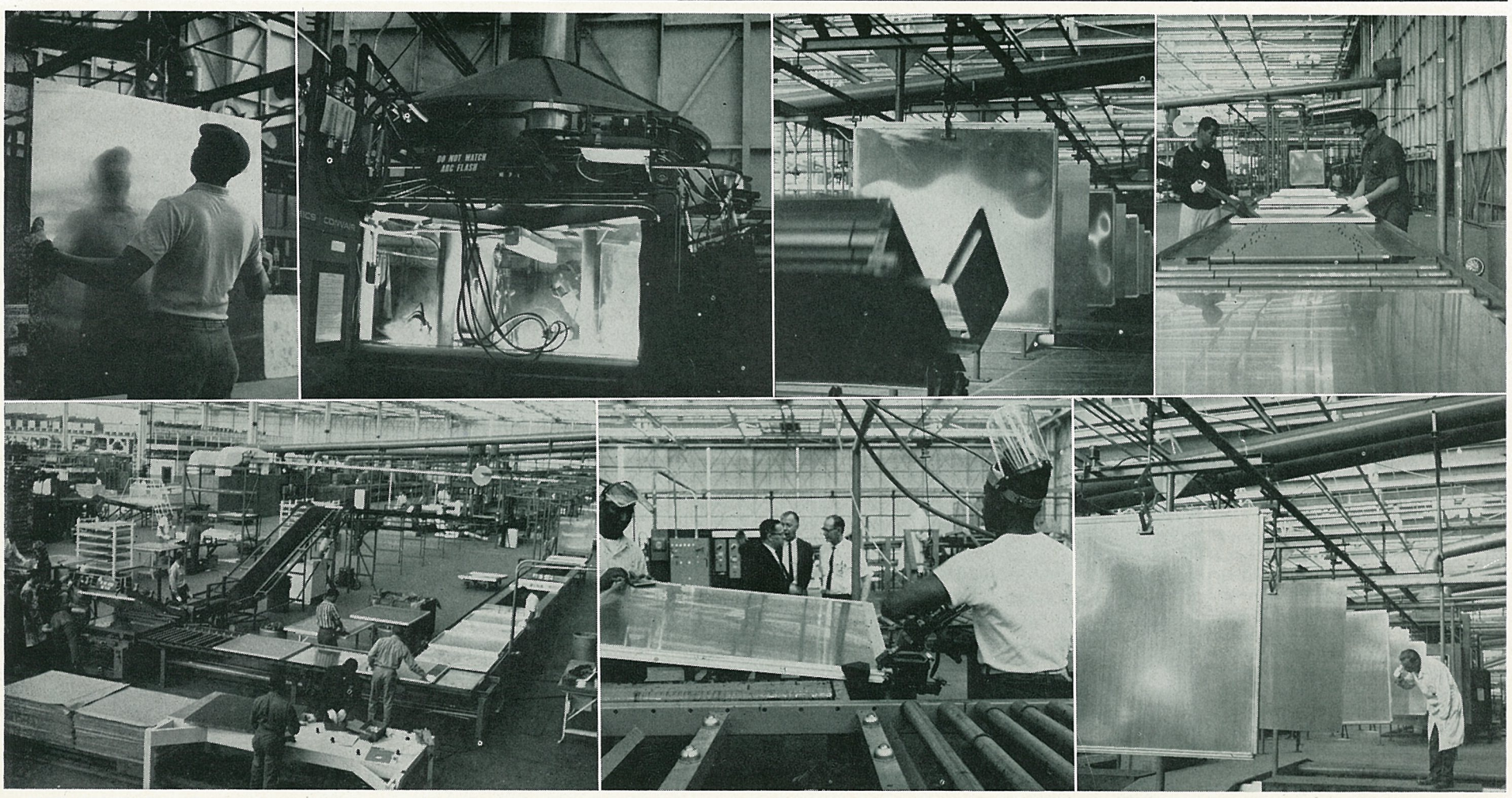
Atlas and Centaur Mated For Launch

(Continued from Page 1)

Mid-course correction and descent commands for the Surveyor will originate at Goldstone.

Combined systems tests for the three AC-10 flight vehicles were conducted successfully March 7 at NASA's Combined Systems Test Stand at Kearny Mesa. A composite readiness test (a countdown and flight simulation prior to actual launch) is scheduled May 25 at ETR.

A 31-man "Tiger Team" from Convair this week was going over the AC-10 vehicles at the Cape. J. W. Lucas is team leader with John Hughes as technical chief, John Swigart as Centaur captain and R. I. Kreisler as Atlas captain. NASA officials and representatives from associated contractor firms are assisting.



MAT ASSEMBLY—Convair's semi-automated landing mat line is turning out new lightweight mats which will go into airfield for testing under actual aircraft operations. Upper left, skins are hung on overhead monorail to start their journey along automated line. First major stop is at Convair-developed pan welder for welding of edges to bottom skin to form pan. Third shot shows pans and top skins coming from acid etch cleaning process to conveyor (upper right and lower left photos) where honeycomb cores are placed in pans between sheets of adhesive and tops tack welded on before assembled mats are sent to bonding presses. In lower center, adhesive is injected at potting station. Hanging mats are inspected at lower right. Convair is fabricating mats for Army under Kaiser Aluminum subcontract.

Nine GD Scholarships Go to Top Students

Winners of nine General Dynamics National Merit Scholarships were announced last week, all sons or daughters of GD employes.

They are:

Robert L. Jaegly Jr., son of Mr. and Mrs. Robert L. Jaegly. His father is a Convair design engineer.

Philip F. Smith, son of Mr. and Mrs. Robert K. Jepperson. His father is a Convair electronics group engineer.

Lawrence Bell Jr., son of Mr. and Mrs. Lawrence Bell. His father is an electrician for Electric Boat.

Bonnie C. Dailey, daughter of Mr. and Mrs. Edwin J. Dailey. Her father is a shipfitter for Electric Boat.

Robert L. Yung, son of Mr. and Mrs. Ben F. Yung Jr. His father is a Fort Worth division field operations supervisor.

Susan E. Speight, daughter of Mr. and Mrs. John W. Speight. Her father is a Fort Worth design engineer.

Gregory A. Simmons, son of Mr. and Mrs. Webb Simmons. His father is a computer programmer at General Atomic.

John S. Renbarger, son of Mr. and Mrs. J. L. Renbarger. His father is a design specialist at Pomona division.

Janet L. Thompson, daughter of Mr. and Mrs. J. N. Thompson Jr. Her father is a Pomona division tooling and operations planner.

Merit Scholarships are for four years and range from $400 a year to $6,000, depending upon the student's need.

Philip Smith intends to major in physics at Yale University, aiming at a career in research. Active in a variety of high school affairs, he lettered in golf.

Robert Jaegly intends to major in physics at MIT with a view to science as a career. With access to an IBM 7040 computer, he recently decided to learn Fortran and Map languages and finds this "a focal point of current interest."

Lawrence Bell also has chosen MIT where he will major in physics, intending to become a research physicist. Winner of many high school honors, he has also been active in Methodist church affairs.

Bonnie Dailey will attend the University of Michigan, aiming at a career in chemical research. Although she has earned many academic honors, she has also been a majorette and appeared in plays produced by the Detroit Theatre Guild.

Robert Yung will attend University of Texas, planning to become a physicist. Active in sports, both as player and spectator, for the last 19 months he has held a part-time job as a salesman for a department store and earned enough to "buy my clothes, pay for dates and keep my car in condition."

Susan Speight will pursue a chemistry career at Arlington State College. An outstanding student in high school, she was on both the tennis and swimming teams and holds the Texas State 50 meter free style record.

Gregory Simmons will major in physics at University of California at San Diego, intending to become an industrial physicist. A young man of many interests in addition to math and science, he studies German and Hebrew languages, is a licensed radio "ham" and "is currently repairing the engine of my motorbike."

John Renbarger will attend Harvey Mudd to major in physical sciences. Co-valedictorian of his class, he was chosen for the National Science Foundation program at Ohio State last summer. Although fearful that a nickname "The Brain" would defeat him, he ran for class office and won.

Janet Thompson will attend Pomona College, but has not yet chosen a major. A top scholar and interested in creative and dramatic writing, she tends toward a career in journalism and political science.

Smith Will Speak To Stress Society

C. R. Smith of Convair division will make two presentations at the spring meeting of the Society of Experimental Stress Analysis in Detroit, Mich., this week (May 4-6).

His formal paper summarizes investigation of the effects of high-density chromium coating on the fatigue life of aluminum alloy specimens. Smith's studies were sponsored by the Air Force Flight Dynamics Laboratory, Wright-Patterson AFB, Ohio.

He also has been asked to discuss his book, "Tips on Fatigue," prepared under a Navy contract.

Cost Reduction Coordinators Meet In Capital as Last Briefing Held

Cost reduction coordinators from various General Dynamics divisions met with Corporate Headquarters representatives in Washington, D.C. last week for a seminar/workshop to review cost reduction techniques and hear progress reports.

George E. Fouch, Deputy Assistant Secretary of Defense (Equipment Maintenance and Readiness) and Max Golden, Corporate vice president, spoke.

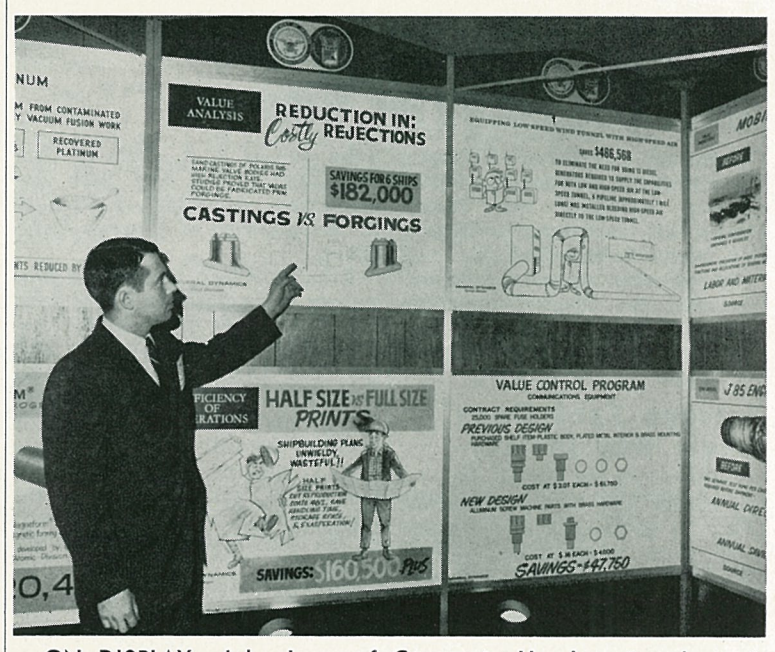
The gathering coincided with the fifth and final DOD-NSIA Advanced Planning Briefings for Industry **(GD/NEWS, March 9, 1966).** Previous briefings were held in Boston, Atlanta, St. Louis and San Francisco. At all, GD cost efforts were prominently displayed in poster form, along with those of other major defense contractors. The best of the posters will be selected for exhibit in the Pentagon later this year. Last year, three GD selections made the "finals."

Briefings, directed at marketing, engineering and planning personnel in industry to acquaint them with needs, plans and programs for procurement of weapons and supplies, have been well attended at all points. Cost reduction booklets containing pictures of all posters exhibited by all the companies have been relayed to all GD operating units in the hope that GD can use ideas implemented elsewhere.

'Motivation' Team Considers Objectives

General Dynamics' new Motivation Task Team held its first meeting last month in Washington, D.C. The team is composed of representatives of divisions with "Do Good Work," "Zero Defects," "Super Craftsmanship" and "Good Design/Fine Workmanship"-type programs.

W. E. Magnuson, head of Convair division's "Do Good Work" program, has been named chairman of the task team for the first year. J. Y. McClure, director of reliability, quality control and value control for the Corporation, gave opening remarks and led a discussion of objectives at the initial meeting.



ON DISPLAY—John Lane of Corporate Headquarters inspects poster display during DOD-NSIA Briefing for Industry at San Francisco. Last of five briefings was held last week in Washington, D.C.



TASK TEAM—Members of General Dynamics' new Motivation Task Team, representing divisions with "Do Good Work" and zero defects-type programs, held first meeting last month in Washington. Standing, left to right, are J. Y. McClure, director of reliability, quality control and value control for the Corporation; R. E. Barrow and D. H. Bailey, Pomona division; Lee Dresser, Electronics, Rochester; B. E. Justice, Corporate office; W. D. Rogers, Stromberg-Carlson, Charlottesville; G. D. Heveron, General Atomic; J. A. Serrie, Electric Boat; and S. J. Lorber, a guest from Army Material Command. Seated, left to right, are G. E. Fouche, Deputy Assistant Secretary of Defense; K. D. Cosby, Pomona; C. C. Frankenburger, GD-Groton; A. R. Haas and D. R. Wright, Stromberg-Carlson, Rochester; E. C. Cauthen, Fort Worth; and W. E. Magnuson, Convair.

Atlas-Agena Set to Launch Observatory

OGO-B, the second orbiting geophysical observatory, is slated to be launched later this month from Complex 12 at the Eastern Test Range by Atlas SLV-3 No. 5601 and an Agena-B second stage.

The SLV-3 booster underwent minor refurbishment at Convair division's Kearny Mesa factory earlier this year to update its configuration for the mission.

Jim Von der Wische, Convair program manager for NASA SLV-3 programs, said it was rolled out of the factory on schedule March 24, arrived at Cape Kennedy April 1 and was erected on the launch pad April 20.

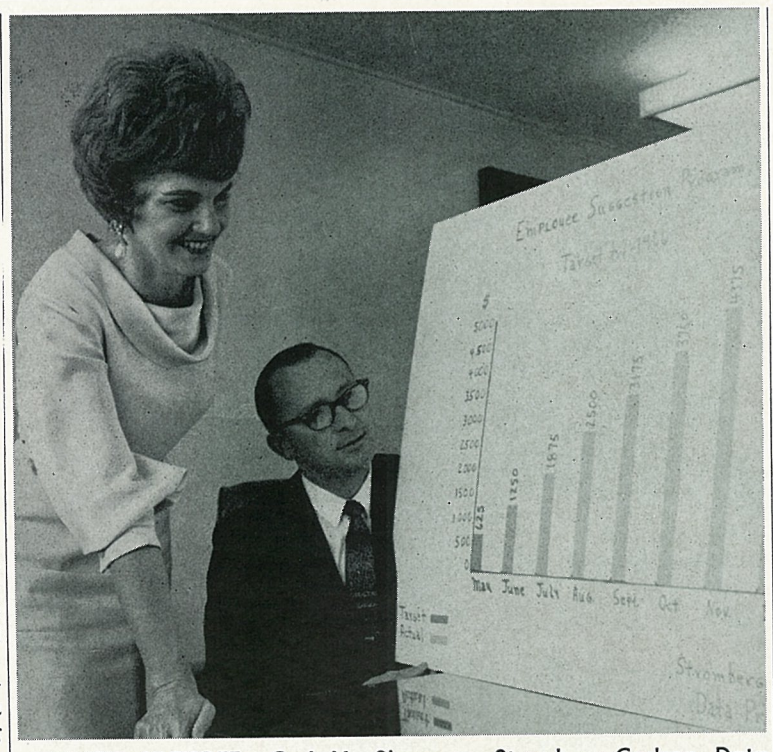
OGO-B's mission will be to obtain and correlate data from a group of experiments including geophysical measurement of magnetic fields, the ionosphere, distribution of energetic particles, radio propagation, interplanetary particles and atmospheric composition.

Data is expected to provide the scientific community with a significant increase in knowledge of the geophysical environment of the earth. The orbiting observatory will have large solar panel "wings" to provide power needed for its operation in space.

The Agena-B second stage for OGO-B is the only such vehicle scheduled for launch with an SLV-3. An Atlas LV-3A was used in the OGO-A launch.

After power from the Atlas booster and sustainer engines have lifted the Agena-B and OGO-B into space, Agena is to have two engine burns with the second following a 43-minute coast in orbit.

The observatory will be ejected about 55 minutes after launch and its solar panel appendages deployed four minutes later. The desired orbit for the observatory has a perigee of 150 nautical miles and an apogee of 80,000 nautical miles with a 31-degree inclination to the equator.



ES/CIP KICKOFF—Carl V. Shannon, Stromberg-Carlson Data Products general manager, explains newly-initiated Employe Suggestion/Cost Improvement Proposal targets to Wanda Rose, secretary.

ES/CIP Plan Extended To S-C's Data Products

Cost-saving ideas of Stromberg-Carlson employes of the Data Products division at San Diego will put extra money in their pockets through the division's Employe Suggestion/Cost Improvement Proposal program initiated this week.

Data Products will conduct its ES/CIP plan along the same lines as programs already in effect at parent Stromberg-Carlson and General Dynamics divisions. Stromberg-Carlson at Rochester started its ES/CIP plan last year, achieving savings of $20,800. This year's goal is $50,000.

Goal established for Data Products is $5,000 for the balance of 1966, Carl V. Shannon, general manager, said in announcing the program. Each department will be responsible for a specific share of the total amount.

"This suggestion system can do much to increase our efficiency and profit," Shannon said. "Many of the ideas that lead to the creation of new products, improvement of existing products, and the reduction of costs can originate with you who are doing the work day in and day out."

Hourly employes will be eligible for cash awards under the Employe Suggestion section of the program and supervision will receive individual recognition for Cost Improvement Proposals. Submitters of approved Employe Suggestions will receive 10 per cent of the first year's savings. Minimum payment is $10 for suggestions saving from $50 to $100. Maximum award is $5,000.

The suggestion system will be directed by representatives from the five major areas — industrial relations, operations, engineering, marketing, and the controller's office. They will determine amounts of awards and decide eligibility, priority, ad policy matters.

First awards will be announced the first of June for suggestions submitted during May. Suggestion forms are available in boxes located throughout the plant.

640 Performance Increased; FAA Certificate Awarded

Convair has completed a flight improvement program and recertification for its Convair 640, turboprop version of the Convair-Liner 340/440 series.

Changes to the aircraft have resulted in increased performance and a Federal Aviation Agency certificate was awarded on April 26 to Convair for the higher-performance aircraft.

Convair has contracted for conversion of 54 of the 240, 340, and 440 Convair-Liners to Rolls-Royce turboprop engines for commercial airline operators in the United States, Puerto Rico, and Holland. Conversion of 28 of these is being done at the Convair Service Center at San Diego.

Convair 600 is the designation for the converted 240 series aircraft, while Convair 640 is the label for the uprated 340/440 series.

"The aircraft has now demonstrated performance characteristics which are substantially higher than those forecast for it," J. B. Hurt, 600/640 program manager, said.

"The changes which produce this higher performance are relatively minor and can be incorporated into existing 640 aircraft very simply."

A major improvement came from a reduction in the engine exhaust duct area, giving each turboprop engine increased effective thrust of about 100 pounds. Braking was improved by addition of a Hydro-aire anti-skid system. Propellers four inches larger in diameter were tested also and can further reduce take-off distance.

Optional features offered operators include the larger propellers, an automatic water-methanol system, and reversible pitch propellers for better runway control. Soundproofing is also available to reduce cabin and cockpit noise.

Close coordination between Convair and Hawaiian Airlines has resulted in the start of service of the first improved 640 almost immediately. Hawaiian was scheduled to put the first of the newly-certified 640s into commercial service on April 30.

Convair will complete a similar flight improvement program for the Convair 600 on June 1 of this year, Hurt said.

Rogers Heads New LF Material Group

In a material organization change at Convair J. M. Rogers has been appointed chief of material program coordination reporting to H. E. Moose, director of material, General Manager Jack L. Bowers announced.

The new function within material is designated Dept. 848-0. It is designed to provide all major programs in Lindbergh Field operations with a material organization unit which will function in direct response to program management material requirements.

Reporting to Rogers are M. Swinney, C-5; K. F. Horn, Convair 600; P. G. Peninger, F-102/106, C-141, Douglas support and ocean data station programs; Norm Grand, spares, ALM, F-111, Little Joe II; M. E. Kruger and W. B. Jones, special programs.

W. F. Miller Appointed Atlas D/E/F Manager

W. F. Miller has been named program manager of Atlas D/E/F programs, replacing C. J. Dunn who has been appointed director of marine products. Miller also will continue serving as program manager of advanced program development, Dept. 950-2, until a replacement is assigned.

Miller has been with Convair and the former Astronautics division since 1956 and formerly served as assistant chief test engineer and as chief of Convair operations at Vandenberg AFB.

Course in 'Managing' To Begin Tomorrow

"Principles of Managing" and "Marketing Decision Simulation" courses begin tomorrow (May 5) for Convair Management Club members.

The ten-week "Principles of Managing" course will be taught by John Leib, chief design engineer, and William Chana, chief of proposal development. Classes will be from 6 to 8 a.m. in the Kearny Mesa executive dining room with no-host breakfast. There will be no charge.

"Marketing Decision Simulation" will be an eight-week course taught by Robert Williams, chief of guidance analysis. Sessions will be from 4:45 to 5:45 p.m. in the Bldg. 2 presentation room at Kearny Mesa. Cost will be $3 for text.

Williams, chairman of the Management Club education committee, said employes wishing to attend either course may enroll at the first class meeting.

Clay Murdock New S-C Mgt. Club Head

Clay Murdock, head of tube design at Stromberg-Carlson Data Products, succeeds R. E. Mattas as president of the Stromberg-Carlson Management Club following recent election for the 1966-67 club year.

Other officers announced at the April 21 meeting are Nate Waddington, first vice president; Bob Hayde, second vice president; Jim Stubbs, secretary; Roy Dieter, treasurer.

Roy Gilmore was elected three-year board member.

Installation will be at the May meeting.

Nobel Barnes, S-C manager of budgets at Data Products, was chosen for April "Man-of-the-Month" honors.

28 AF OFFICERS VISIT CONVAIR

Twenty-eight Air Force officers enrolled in a one-year "education with industry" program at 10 West Coast industrial firms were guests of Convair division last month.

Many GD Sons and Daughters Among Science Fair Winners

Sons and daughters of General Dynamics personnel won 50 awards, including two sweepstakes, at last month's Greater San Diego Science Fair.

Sweepstakes winners, who will represent San Diego County this month at the International Science Fair in Dallas, were Donald Atha, son of A. A. Atha of Convair Dept. 847-2, and Beth Romanowich, daughter of Richard R. Romanowich of Convair Dept. 531-2.

Atha's project, a study of how energy is regulated in living cells, took first place in the senior biochemistry division and also won the San Diego County Medical Society's outstanding achievement trophy and an American Cancer Society award. Miss Romanowich's project, establishing a blood group system in the laboratory rat, won a first place award in the senior medical science division.

Tamzon Feeney, daughter of D. M. Feeney of Convair Dept. 581-2, received five awards — first place, medical science; Signet Mentor Library; NASA Life Sciences; Air Force Nuclear Science; and American Nuclear Science.

Following are other General Dynamics employes' children who won:

Kenneth Bell, Steve Board, Bill Chiment, Verna Davlin, Christine Demers, Roger Freedman, Bruce Gardner, Louise Gerdes, Peter Goedell, James Hamill, and Michael Hujsak.

Barbara King, Holly Kossyta, James Leger, Gregory Mattson, Rolf Menzel, Robert Nau, Nicky Nichols, Larry O'Rourke, Penelope Parsons, Sally Quintard and Philip Quirk.

Linda Rasmussen, Cindy Ream, Robin Reeder, Philip Riggan, Jeanie Schultz, Barry D. Smith, Linda Sprague, David W. Stearns, Andy Sturman, Susan Tanner, Jim Van Epps, John W. Winslow and Joanna Wright.

Jack Croft and Emory Thurston of Convair division educational services office were in charge of judging for the Science Fair management committee.

Basic Blueprint Class Will Begin

A new class in basic blueprint reading will start next week at Lindbergh Field plant sponsored by Convair educational services in cooperation with San Diego City College.

The after-hours supplementary course will extend for 14 weeks, each Wednesday, 3:45-6:45 p.m., in LF Bldg. 14, Room 8. Hal Rubin of educational services will instruct.

The class is oriented to the aerospace industry. It will emphasize Convair and vendor drawings, featuring practical applications for workshop projects.

Registration will be taken at the first class session May 11, at 3:45 p.m. Pre-registration may be made in advance through Wayne Turner, LF ext. 491, or Hal Rubin, KM ext. 1931.

Dale Taber Named Radio Club Prexy

Dale Taber of Dept. 957-0, who operates amateur radio station WA6YHA, has been elected president of the Convair Radio Club for the coming year.

Other officers are Joe Miller, Dept. 420-5, WB6PWM, vice president; Boni Chandler, Dept. 143-2, WB6WXI, secretary, and Bill Roden, Dept. 491-0, WB6JWQ, station engineer.

The Radio Club meets at 7:30 p.m. the first and third Thursdays each month with meetings alternating between the KM and Harbor Drive club headquarters.

Salvage Yard Open Single Day in May

Only employes' sales day for the month will be this Saturday (May 7) at Lindbergh Field salvage yard, adjacent to Gate 5. Sales hours are 8 a.m. to noon.

CAR KEYS, GLASSES IN LOST AND FOUND

Missing your car keys, or glasses? Check employe services at Lindbergh Field Bldg. 16. Three sets of keys and two pairs of glasses are awaiting owners. The keys belong to a Rambler, a Ford, and a GM make car. One pair of glasses is a woman's bifocals; the other, man's safety glasses in brown frame.

ATLAS MISSILE PINS ON SALE

Gold and silver Atlas missile pins now are on sale at reduced price at the CRA Clubhouse and all employe services outlets at Kearny Mesa, Lindbergh Field, Stromberg-Carlson, Plant 19, and LF engineering mail room, Bldg. 51. Price is 50 cents each.

SKIN DIVERS SET SPEARFISHING MEET

Delta Divers will have a spearfishing meet Sunday, May 15, at Del Mar. Hours will be from 9 a.m. until noon. Next meeting of the skin diving group will be May 11, 7:30 p.m., CRA Clubhouse.

'Inside Convair' Series Begins With O'Leary on ICBM Work

First presentations were being given this week in the "Inside Convair" series, which will give employes detailed information on work being done by the division.

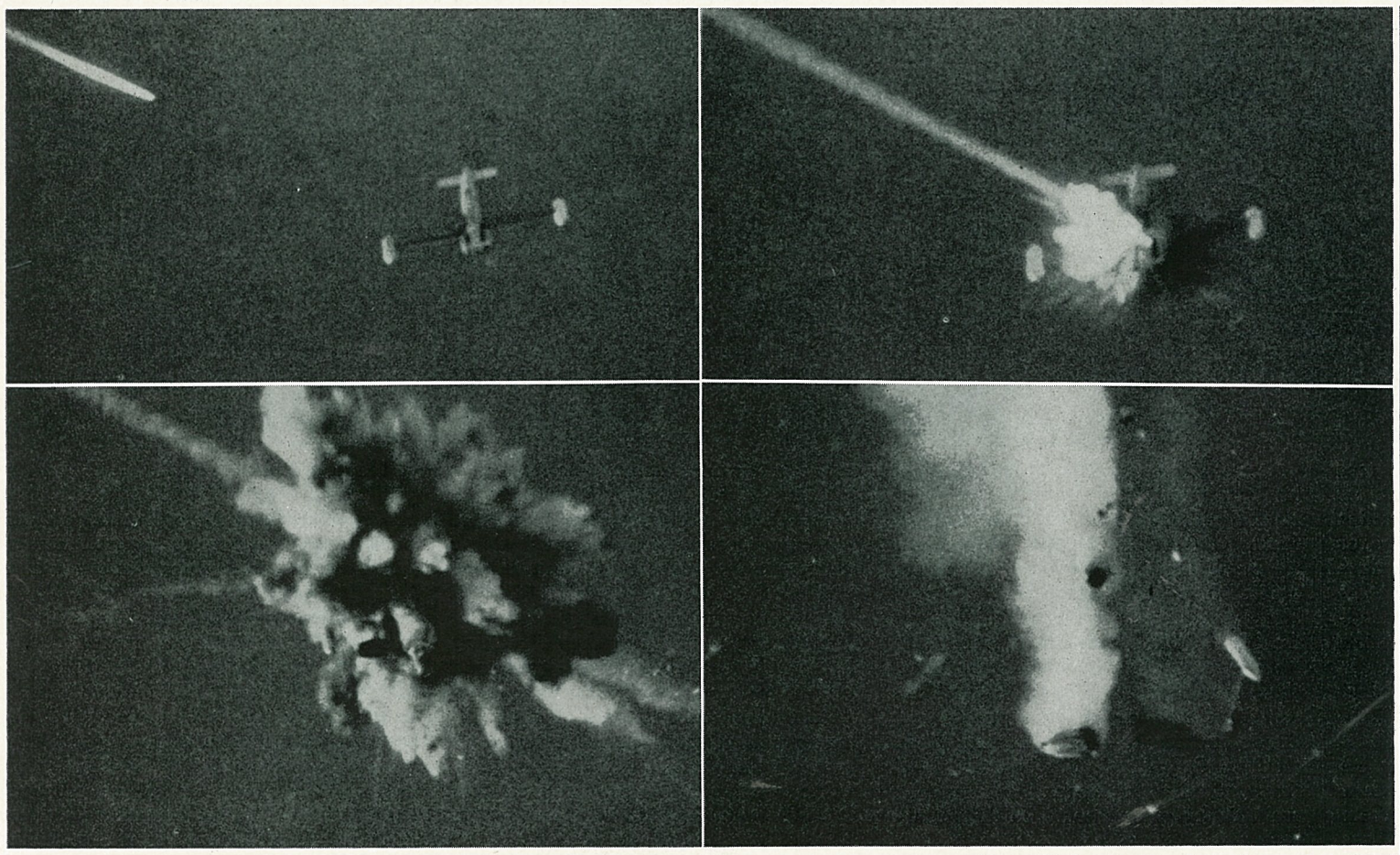
The ICBM programs talk by Patrick O'Leary given Tuesday at Kearny Mesa and scheduled tomorrow, May 5, at Lindbergh Field, is limited to employes with secret clearance. Other presentations are unclassified and open to all employes.

Sessions are from 4:45 to 5:45 p.m. Tuesdays in the cafeteria at Kearny Mesa and Thursdays in the Bldg. 14 second floor educational services auditorium at Lindbergh Field.

The Apollo applications program will be discussed May 10 and 12 by James Brady and the Dart program May 17 and 19 by Jack Hurt.

The launch vehicles programs presentations will be by Andrew Kalitinsky May 24 at Kearny Mesa and May 25 at Lindbergh Field.

Other currently scheduled presentations are on maneuverable re-entry vehicles and advanced booster, June 7 and 9, with Richard Nau speaking and analog-digital-hybrid computers, June 14 and 16, with Drs. Allan Wilson and W. J. Schart.



DIRECT HIT—Strike of Redeye anti-aircraft missile is shown in picture sequence beginning, at top left, with approach of drone target aircraft. Hit is shown at top right, followed by explosion, lower left. In photo at lower right, debris falls from destroyed drone. Redeye, shoulder-fired guided missile, is being produced at Pomona division for Army and Marine Corps.

TAC Staff Members Briefed on F-111

Commanders and key staff people from Tactical Air Command's 9th and 12th Air Force will receive two-day orientation briefings on the F-111 starting this week at Fort Worth division.

Ten of the two-day sessions will be conducted by logistics support personnel during the first and third weeks of each month. The first session started May 3.

Sessions will include general aircraft orientation, briefings on various systems, and a flight-line tour. During the latter, F-111 pilots will conduct briefings on airplane operations.

Phone Switchboard Order Goes to S-C

Stromberg-Carlson has been awarded a $3,860,000 contract by the U. S. Army Electronics Command, Fort Monmouth, N. J., to engineer, furnish and install telephone switchboard systems for ultimate use in Southeast Asia.

The award brings S-C's military contracts in the last months to more than $8.5 million.

The military equipment is similar to the standard XY switching systems manufactured at Rochester, N. Y., for commercial use by independent telephone companies.

General Dynamics Licensed to Build And Sell High Speed Hydrofoils

General Dynamics announced last month it had entered into a license agreement with Supramar, Ltd., of Lucerne Switzerland, under which General Dynamics will manufacture and sell hydrofoil boats in the United States and other Western hemisphere nations based on Supramar's patents and engineering drawings.

General Dynamics has assigned responsibility for hydrofoil programs to Convair division.

Jack L. Bowers, Convair general manager, announced that C. J. Dunn has been appointed division director of marine products to supervise the hydrofoil programs.

"Convair is exploring adaptation of Supramar hydrofoil concepts for a number of military missions, including fast patrol boats, antisubmarine warfare and air-sea rescue missions," Bowers said. "The use of hydrofoil boats offers greatly increased performance for many of these missions."

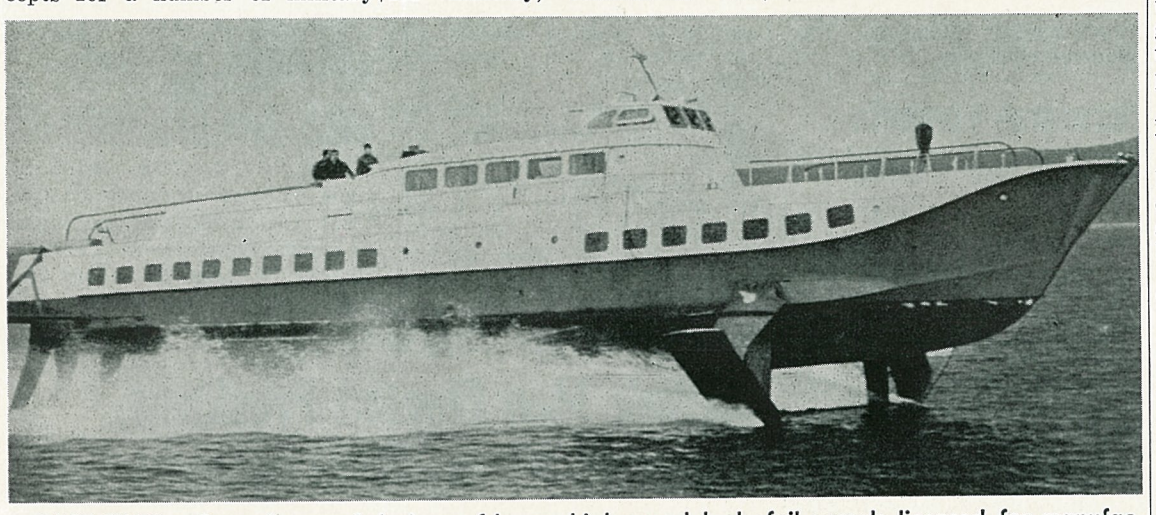
General Dynamics also will direct its efforts to expand use of hydrofoils as fast passenger ferries on lakes, rivers and coastal waters, for Coast Guard and customs work, and for use in connection with off-shore drilling operations.

"The Supramar design is extremely simple, and over the past decade has proven itself in a wide variety of uses," Bowers added. "These two factors make the General Dynamics-Supramar hydrofoils a most attractive vessel for military, commercial and recreational markets."

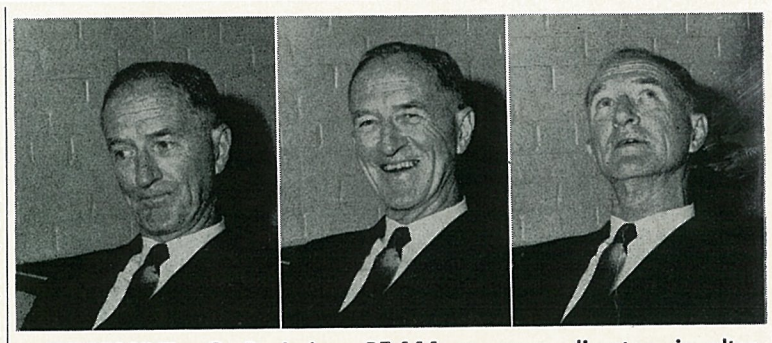
Supramar hydrofoil designs currently range in size from 35 feet to 91 feet with cruising speeds of 40 knots and more. An essential feature is the use of lifting surfaces, or foils, mounted beneath the hull. These generate lift to raise the hull above the waves, reducing water resistance and allowing more efficient use of the vessel's power.

Safety Engineers On Tour of Quincy

Sam Rowland, safety engineer at General Atomic division, and H. W. Loven, safety engineer at Fort Worth division, are on two weeks duty at Quincy Shipyards, assisting in reviewing the division's safety program.



FAST FLYER—One of several designs of large, high-speed hydrofoil vessels licensed for manufacture and sale by General Dynamics is shown carrying 120 passengers on a European lake. Boat is more than 91 feet long, uses two diesel engines developing 2,700 horsepower, and cruises at more than 40 knots.



EXPRESSIVE—C. R. Irvine, RF-111 program director, is alternately pensive and jovial as he discusses recon version of F-111.

Design Work Under Way On F-111 Recon Version

Secretary of Defense Robert S. McNamara recently directed the Air Force to develop a reconnaissance version of the F-111A—the RF-111A.

Fort Worth division, under direction of Air Force Systems Command, has been assigned the task. C. R. Irvine, RF-111 program director, answers some often-asked questions about the program.

Q. What is the status of the RF-111A program?

A. The $12 million recently released by DOD is for starting the design, construction and test of a prototype of the RF-111A now being defined.

Q. Will the RF-111A be a "new" airplane?

A. No. F-111A RDT&E aircraft No. 11 will be converted into the recon prototype. Both modification and flight-test of the prototype will be carried out at Fort Worth division.

Q. What modifications will be required?

A. In the main, they'll involve removing the weapons-bay doors and installing a pallet in the bay to house the various reconnaissance sensors and related recon equipment. These sensors are devices such as cameras, radar, infrared, etc., that record information about the area below and adjacent to the aircraft. Provisions will also be made to power, cool and control the sensors. These sensors are, in general, proven hardware from existing Air Force and Navy reconnaissance programs. Minimum modifications will be required.

Q. What advantages will the RF-111A have over many existing recon planes?

A. It will have virtually all the capabilities of other modern recon planes, plus all of the additional features and capability of the basic F-111 air vehicle, such as added range and endurance. Other capabilities include flexibility of deployment, due to long ferry range and short takeoff and landing capability, which enables utilization of many more bases.

Q. Do we plan to build a reconnaissance version of the Navy F-111B?

A. Not presently. However, studies indicate a great potential for similarity between an RF-111A and RF-111B.

Q. Will the RF-111A have a different appearance from the F-111A?

A. Not essentially. Only difference will be added radomes and optical windows under the weapons-bay area.

Q. How many RF-111As will be built?

A. At present just the prototype.

Q. How many people would be involved in this project?

A. If things go according to plans, some 200 engineers will be involved in the program within about eight months.

Q. Will the RF-111A be an "expensive" airplane?

A. RF-111A costs have been kept to a minimum through the use of the basic F-111 air vehicle with minimum changes, and including recon sensors that are off-the-shelf. As such, the increment of cost over the F-111A is essentially limited to the cost of the reconnaissance items.

People Mobility

Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company).

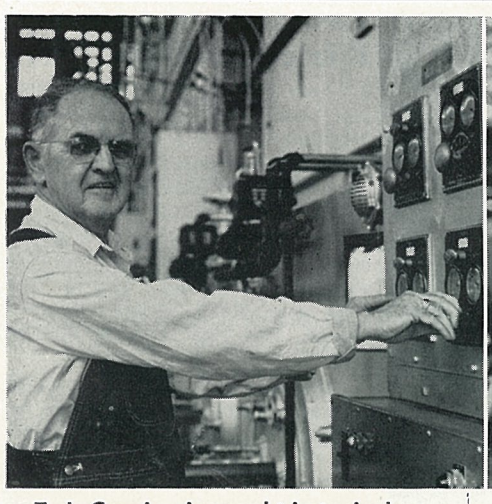
OWEN L. TODD (1951) from Convair (White Sands) to B-58 Mod/IRAN, Fort Worth division; **SAMUEL N. DONALDSON** (1963) from Convair division to estimating, Fort Worth; **DAVID B. DEWEY JR.** (1962) from Electric Boat division to research engineer - senior, Convair; **LEONARD E. FOGLESONG** (1961) from Convair to General Atomic; **RALPH G. HUFF** (1943) from Convair to quality control engineer, Electronics, San Diego; **MAURICE B. KOENEKAMP** (1954) from Convair to quality control engineer, Electronics, San Diego; **HAROLD F. SCHUBERT** (1950) from Convair to manufacturing control, Fort Worth; **CHARLES F. WILKERSON** (1951) from Convair to Fort Worth (Edwards AFB); **FRED J. LINDAHL** (1953) from Electronics, San Diego, to tool designer, Convair; **FRANCIS J. QUINTEN** (1954) from Electronics, San Diego, to tool designer senior, Convair.

Division and Corp. Education Services Reps Meet in East

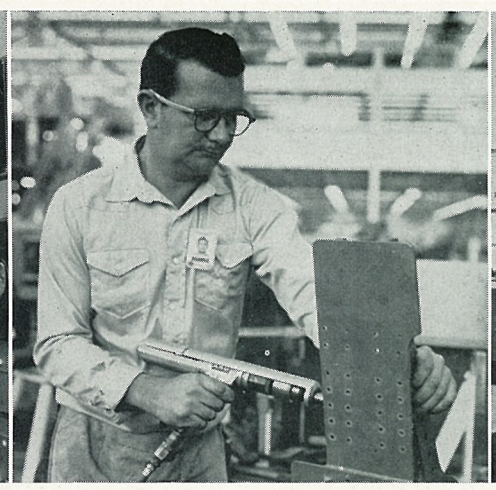
Educational services representatives from Corporate Headquarters as well as General Dynamics divisions are meeting in Pittsburgh, Pa., this week, coincident with the National Council of the American Society for Training and Development.

J. L. Budros, Corporate director of compensation and personnel development, is representing the Corporation. Ross Evans, Convair manager of personnel administration, will chair the GD conference. Wayne Turner of Convair, as president of the San Diego Chapter of ASTD, is a delegate to the National Council.





T. J. Cunnion is caught in typical pose as he adjusts the automatic controls for the boilers in the power house which supplies heat and air conditioning for all of AF Plant 19. Cunnion is sole day-shift operating engineer with two others assigned to the other shifts for around-the-clock operation. Besides operating the controls all three are responsible for lab tests of the water used in the boiler. Cunnion has been an engineer in Lindbergh Field and Plant 19 power houses all of his 26 years with the company. He learned his trade at Pennsylvania Coal Co., Scranton, Pa., where he rose from fireman to engineer. His wife, Anna, has worked at Convar the last 22 years in electric bench at Lindbergh Field plant. They make their home in Mission Hills and enjoy traveling and fishing.



Roger Crowe, assembler in the C-141 horizontal stabilizer production area at Lindbergh Field plant, was snapped spot facing a hinge point for the tie box. He first joined Convair in 1947 as an assembler on the Convair-Liner line and later was in rigging and interior on the 880/990 line until cutbacks in 1963. He spent a year with other San Diego companies before hiring back into Convair in C-141 empennage production. Crowe and family—wife, Patricia; three children, Peggy, 13, Stephen, 10, and Kathy, 8, live in Ramona where they are building a new home on their four-acre tract. Crowe has been doing the plastering and finishing himself. In addition to his building chores, he spends most weekends cutting firewood to supply his steady customers.



Steve Yurcich cleans an Air Force umbilical cable after a launch before it is tested and renovated for reuse in Convair support operations at AF Plant 19. Yurcich joined Convair 16 years ago as a potter during B-36 days and was assigned to the sealant crib, later mixing synthetic rubber for lining F-102/106 fuel tanks. He transferred to the former Astronautics division in 1963 and has been based at Plant 19, mixing sealant and potting for cables. Born in Pennsylvania, Yurcich was taken at the age of 6 to Yugoslavia, his family's home country. He returned to the United States as a young man of 21 and went to work for Westinghouse in Pennsylvania and later for Wheeling Steel Corp. in Ohio. He, his wife Helen, and son Frank, live near SD State.



Newton Kern of material disposition and sales (Dept. 850-3) is one of the salvage handlers at the Lindbergh Field salvage yard who sorts surplus material for disposal. Usable items are put into tubs for regular employe sales days; surplus iron and stainless steel is separated to be sold in bulk, and aluminum is baled for sale to dealers. Kern has spent all of his 10 years with Convair at the Lindbergh Field salvage yard. He came to San Diego from Kansas City where he operated a service station and, before that, worked as railroad section hand and with bridge gangs in Kansas and Missouri. He and his wife, Florence, purchased a home recently in Ocean Beach and spend most of their spare time fixing up the place. Their son and daughter are married.

'First Cut' Operation at LF Shows Remarkable ZD Effort

Dept. 836, the material department's first-cut operation at Lindbergh Field, took San Diego area Convair division "Craftsmen of the Month" honors for March with a 120.7 quality index.

The March competition was the first in which Kearny Mesa and Lindbergh Field departments had been in direct competition, with one winner named for the San Diego area.

W. E. Magnuson, chairman of the "Do Good Work" program, said the Dept. 836 Craftsmanship win was a particularly significant accomplishment since the department, formerly located in Rose Canyon, had been involved in competition only three months.

During the first month quality control statistics were kept for the department, there were 149 defects with 2,014 manhours worked. In February, defects were reduced to 30 with 2,130 manhours worked. In March, defects dropped to 13 with 2,747 manhours worked.

"This is truly an example of a department improving its performance," Magnuson said.

Craftsmanship honors for March at the Eastern Test Range went to Complex 36-A with a 120.2 quality index and at the Western Test Range to ABRES-A with a 113.1 quality index. A quality index of more than 100 indicates improvement over past performance.

Other departments with high quality index ratings for March included processing Dept. 002 at Lindbergh Field, 109.9; electric bench harness area Dept. 733-15 at Kearny Mesa, 108.7, and plaster, plastics and foundry Dept. 454 at Kearny Mesa, 108.1.

$5 Will Pay For Ball Game and Bus

Last call is out for all baseball fans who want to see the California Angels in action in their new Anaheim stadium.

Sign-ups are still being taken for the CRA group trip to the Angels' doubleheader May 15 when they meet the Boston ball club.

Cost for chartered bus fare and game admission is $5 a person. One bus will load at Lindbergh Field plant's parking lot north of Bldg. 19 and three at the flag pole in Kearny Mesa plant's parking lot in front of Bldg. 2. Departure time is 10 a.m.

Tickets are on sale at CRA Clubhouse, Kearny Mesa, and Lindbergh Field employe services, Bldg. 16.

Bargain Tickets To Fair on Sale

Tickets for the Eastern San Diego County Fair to be held May 26-30 at Gillespie Field are now on sale at 35 cents (less than half price) at employe services offices, the CRA Clubhouse and from Joyce in the Bldg. 51 mailroom at Lindbergh Field. Children under 12 will be admitted free.



TROPHY WIN—C. A. Johnston, right, chief engineer, presents Western Test Range "Do Good Work" trophy to A. H. Hoines, site manager, for ABRES-A employes. WTR group winning monthly competition most times in 1966 will have permanent possession.

Bridge Club Names Master Pt. Winners For Last Month

Nina and Buford Montgomery won North-South honors and Julius Hertz and Jack Christian, East-West, at the April 1 Master Point night of CRA Bridge Club.

The following Friday in regular play, using the Howell system, Vi Thomas and Sally Ishihara were the only winning team. Vi and Sally went on to take East-West honors on April 15 with Commissioner Bob Rustad and his wife, Mitzi, winning North-South.

Sophia and David Krause were North-South winners and Verdean and Don Abernathie took East-West honors April 22.

Next Master Point night will be this Friday, May 6.

Officers chosen for the 1966-67 club term are Tony Miller, president; Buford Montgomery, vice president; Mitzi Rustad, secretary-treasurer; Francys Darr, publicity chairman.

Horsemen Compete In 'Fun and Games'

David Watson of Dept. 130-1 was high-point rider of the day at Convair Riding Club's April 17 fun show. He garnered 18 points in "fun and games" feats.

Jan Kreis, 15, daughter of Boyd Spencley, Dept. 963-4, was runner-up with 17 points. Sheila Payne, 17, daughter of Scotty Payne, Dept. 130-2, was third at 14 points.

Ray Garcia of Dept. 250 won the Timex wristwatch raffle prize.

Timers were Sam Special, club president, and Shirley Berry. Spencley and Clyde Donahoo were show managers.

Next club meeting will be Wednesday, May 11, 7:30 p.m., CRA Clubhouse, and next all-day fun horse show will be May 15.

Pilots' Ground Class Meets Tomorrow

First class of the 13-week private pilots' ground course, "Aircraft Traffic Control," will be held tomorrow evening (May 5) with a capacity enrollment, Bonair Flyers Commissioner Glen Hemphill reported.

Over 30 signed for the course, offered for the first time in the city's Adult Education program through efforts of the CRA flying club. Class sessions will be each Thursday evening, 6:30-9:30 p.m., at Midway Evening Adult School.

Instructor is Kenneth Morgan of Electronics - SD advanced systems.

24 in Reliability Control Commended For Cost Cutting

Twenty-four reliability control department personnel have been awarded commendation certificates for cost reduction and value control projects during the first quarter of the year that will save the division $446,864.

P. I. Harr, reliability control director, presented the certificates April 13 in ceremonies in the Bldg. 2 presentation room.

Eric C. Callard, cost reduction programs administrator, said savings for the quarter brings the total for the department for the 27 months since the program began to $7,400,000.

D. R. Archibald, manager of quality control, Dept. 143-0, was "high dollar man" for the quarter with two cost reduction projects saving $94,892. They involved streamlining of inspection techniques and reduction in frequency of manual reports and elimination of some that were unnecessary.

Other personnel receiving certificates and savings for each were:

R. G. Roscoe, $87,453; A. J. Woodington, $77,773; T. L. Lamoureux, $44,496; M. W. Sexey, $24,010; William Olson, $21,380; R. G. Bailey, $18,963; Lester Dassoff, $18,665; E. M. Duke, $17,324; G. A. Knauss, $15,299; R. E. Dubel, $14,566; E. H. Lawton, $13,810; L. S. Franklin, $12,934; Sam Braun, $10,675.

W. H. Kirk, $7,762; Gerhard Gross, $7,566; P. M. Benner, $6,695; Sam Petcher, $6,669; L. M. Menches, $3,224; R. D. Williams, $3,114; R. W. Woodward, $2,712; D. K. Krosch, $2,712; W. F. Rice, $2,677; S. S. Smith, $2,667; R. W. Becker, $1,533; and C. L. Amaral, $1,418.



TOP SAVER—D. R. Archibald, right, manager of quality control, Dept. 143-0, receives certificates of commendation from P. I. Harr, director of reliability control, for two cost reduction projects that will save Convair $94,892.

Convair Men Elected President, Executive VP by Wt. Engineers

Harold L. Jensen Jr. and Donald O. Nevinger of Convair division will be installed today as president and executive vice president, respectively, of the International Society of Aeronautical Weight Engineers.

Jensen is a senior instrumentation engineer in Dept. 964-3 and Nevinger a senior weight engineer in Dept. 966-8.

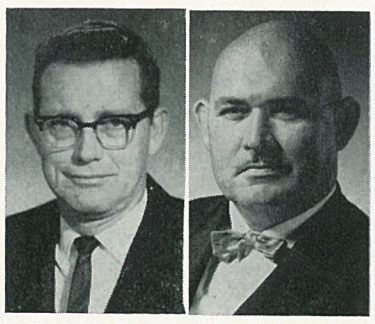
About 200 delegates are attending the four-day SAWE silver anniversary conference which ends tomorrow at Hilton Inn in San Diego. Seventy different technical papers are being presented.

Andrew Kalitinsky, launch vehicle engineering technical director for Convair, discussed "Weight Control from Dream to Delivery" at a government-industry conference session yesterday.

Karel J. Bossart, Convair technical director, will give a key luncheon address today. His subject is "Some Thoughts About Space."

Technical papers are being presented by W. E. Caddell, R. L. Benson, R. H. Trelease, C. A. Carrocq, C. K. Perkins and J. M. Youngs of Convair division and Dr. H. R. Thornton of Fort Worth division.

Robert J. Thompson Jr. of Fort Worth division has served as vice president and Norbert J. Carraway of Convair division as executive secretary for the international organization during the past year.



D. O. Nevinger H. L. Jensen

CRA Calendar

(Following is a complete list of CRA activities. It is suggested that GD/NEWS readers clip it for future reference. For information on activities call CRA Clubhouse, KM ext. 1111.)

* * *

ADVENTURERS — Meetings third Wednesdays, 7:30 p.m. CRA Clubhouse, Kearny Mesa. Monthly camping and hiking trips. Commissioner Dick Bowen, KM ext. 2629.

ARCHERY — Group being reactivated. Commissioner Al Stone, KM ext. 1207.

BADMINTON — Play Mondays, 7-10 p.m., Federal Bldg., Balboa Park. Commissioner Allen Van Norman, KM ext. 2222.

BALLROOM DANCING — Instruction courses held periodically at CRA Clubhouse. For information call Royce Riggan, LF ext. 459.

BASEBALL — Teams entered in IRC and city leagues. Pete Beyrer, KM ext. 1111.

BASKETBALL—Shop league play during season. Commissioner Gil Crosthwaite.

BICYCLE CLUB — Meetings fourth Mondays, 7:30 p.m., CRA Clubhouse. Monthly rides scheduled.

BOWLING — Leagues bowl year-round at major bowling alleys. Summer leagues now forming. Commissioners: Forest Erwin, KM ext. 2884; Mike Brooks, home phone 469-8793; Jim Hayman, home phone, 469-1262.

BRIDGE — Play each Friday, 7:30 p.m., CRA Clubhouse. Master point nights monthly. Commissioner Bob Rustad, KM ext. 3689.

CAMERA CLUB — Meetings first and third Sundays, 7:30 p.m., Photo Arts Bldg., Balboa Park.

CERAMICS — Instruction Tuesdays and Thursdays, 7-10 p.m., CRA Clubhouse.

CHESS — Play each Wednesday, 7:30 p.m., CRA Clubhouse.

COINEERS — Meetings third Wednesdays, 7:30 p.m., Convair cafeteria, Pacific Hwy. Commissioner Vince Bacon, KM ext. 1317.

DRAMA — Triangle Players meet second and fourth Mondays, 7:30 p.m., CRA Clubhouse. Play, "See How They Run," now in rehearsal.

FENCING — Workouts and instruction Fridays, 7:30-10:30 p.m., YWCA, 10th and C Sts. Commissioner Mike Hurley, KM ext. 1426.

FISHING CLUB — Meetings third Wednesdays, alternating between CRA Clubhouse and Gillespie Field Clubhouse. Potluck, 6:30 p.m.; business, 7:30 p.m. Co-commissioners Bob King, KM ext. 1846, Bob Menzie, home phone, 281-8247.

FLYING CLUB — Bonair Flyers meet Tuesdays, 7:30 p.m., CRA Clubhouse. Fly-ins scheduled monthly. Commissioner Glen Hemphill, LF ext. 1223.

GARDEN CLUB—Meetings first Wednesdays, 7:30 p.m., Floral Association Bldg., Balboa Park. Commissioners E. L. Henderson, KM ext. 3349; Gene Zimmerman, home phone, 277-3383.

GOLF—CRA tournaments held monthly. Commissioner Ken Wulfemeyer, KM ext. 2657.

GUN CLUB — Club shoots first Sundays, 10 a.m., Gillespie Field Range. Registered trap and skeet shoots scheduled regularly. Commissioner Jack Swank, 298-8331.

HEALTH CLUB — Facilities in CRA Clubhouse open to families, men, women under direction of professional instructors. Call ext. 1111, KM.

HI-FI/MUSIC—Meetings second Tuesdays, 7:30 p.m., CRA Clubhouse. Commissioner Archie Ellsworth, KM ext. 1115.

ICE SKATING — Skating sessions for General Dynamics families Thursdays, 6:15-7:45 p.m., Mission Valley Ice Arena. Group outings to Big Bear and ice hockey games during season. Commissioner Bud Davies, KM ext. 2751.

JUNIOR SCIENCE—Workshops third Fridays, 7:30 p.m., CRA Clubhouse. Commissioner Keith Sears, KM ext. 2328.

MOVIES — Reduced prices for GD families at State Theater, Euclid & El Cajon Blvd.

PISTOL CLUB — Club shoots second and fourth Sundays, 9:15 a.m., SD Police Pistol Range, Federal Blvd. and Home Ave. Commissioner Joe Williamson, LF ext. 656.

RADIO CLUB — Meetings first and third Thursdays, 7:30 p.m., alternating between club headquarters at CRA Clubhouse and Harbor Drive location. Commissioner Fred Schulz, KM ext. 2164.

RAILROAD — Miniature railroad operated for GD children at CRA Missile Park. Commissioners Ed Stevens, KM ext. 1441, and Al Kent, KM ext. 3381.

RIDING CLUB — Regular meetings second Wednesdays, 7:30 p.m., CRA Clubhouse. Monthly horse shows at CRA horse arena. Commissioner Joe Pena, LF ext. 1539.

RIFLE CLUB — Club meetings second Wednesdays, 7 p.m., CRA Clubhouse. Shoots first Sunday of month, 8:30 a.m., and fourth Wednesdays, 7 p.m. Hunter safety classes sponsored. Commissioner Bob Andrews, KM ext. 777.

ROCKHOUNDS — Meetings second Wednesdays, 7:30 p.m., CRA Clubhouse. Lapidary workshops at Kearny Mesa Clubhouse and Gillespie Field open on regular schedule. Commissioners Fred Baugh, KM ext. 1446; Dan Whorton, LF ext. 1323.

ROLLER SKATING — Free General Dynamics skate night third Mondays of each month at Skateland, Front and G Sts. Tickets at employe services outlets.

SAILING — Sailing and instruction at Half Moon Inn dock, Shelter Island. Classes limited. Commissioner Jerry Toyen, KM ext. 1685.

SCULPTURE—Workshop sessions Mondays, 7:30-10:30 p.m. CRA Clubhouse.

SKI CLUB — Meetings first Tuesday of each month, 8 p.m., Catamaran Hotel, Mission Blvd. Water skiing on Mission Bay during summer season. Snow skiing trips to Mammoth Mt. and Big Bear during winter season. Commissioner Joe Harris, home phone, 284-0278.

SKIN DIVING — Delta Divers meet second Wednesdays, 7:30 p.m., CRA Clubhouse. Dives held monthly. Commissioner Cliff Kickbush, KM ext. 2743.

SOFTBALL — Plant league play in both slow-pitch and fast-pitch during season. Commissioner Tony Berardini, LF ext. 1046.

SPEECH — Convair Toastmasters No. 3745 meet each Wednesday, 4:15 p.m., CRA Clubhouse. Dynamic Toastmasters No. 467 meet every Thursday, 5:15 p.m., CRA Clubhouse. Serra Mesa Toastmistress Club meets first and third Mondays, 7:30 p.m., CRA Clubhouse.

SPORTS CAR CLUB — Meetings second Wednesdays, 7:30 p.m., Convair executive dining room, Pacific Hwy. Regular outings scheduled. Commissioner Gerry Wright, LF ext. 1130.

SQUARE DANCING—Instruction held twice a year for beginners. Intermediate and advanced dance sessions weekly in CRA Clubhouse. Commissioner Marty Stutz, KM ext. 1441.

STAMP CLUB — Commissioner Art King, KM ext. 2812.

SWIMMING—Family swim night third Saturday, 7-9 p.m., at Mission Beach Plunge during summer months. Tickets at employe services outlets.

TENNIS — Instruction for beginners and tournaments scheduled throughout year. Commissioners Ray Hardy, KM ext. 1692, and Bob Herold, KM ext. 2392.

TRAILERS—Travelers meet first Tuesdays, 7:30 p.m., CRA Clubhouse. Regular outings scheduled. Commissioner Virg Marshall, KM ext. 3541. Road Runners meet third Thursdays, 7:30 p.m., Gillespie Field Clubhouse. Monthly outings. Commissioner Ralph East, LF ext. 1141.

TROPICAL FISH — Meetings and workshops second Mondays, 7:30 p.m., CRA Clubhouse. Pete Beyrer, KM ext. 1111.

VOLLEYBALL — Plant teams entered in IRC league.

WIVES — Luncheon meetings third Wednesday of each month at area restaurants. Potlucks and craft sessions fourth Wednesdays, 10 a.m., CRA Clubhouse.

Get-Acquainted Tea Planned For Wives

Wives of Convair employes are invited to the annual get-acquainted tea sponsored by the Convair Wives' Club May 25 in CRA Clubhouse, Kearny Mesa.

Social hour is from 1 to 2:30 p.m. A display of crafts sponsored by the club will be held in conjunction with the affair.

The club is open to wives of all Convair employes at a nominal fee of $2 for yearly dues. All women are urged to take advantage of the club's diversified activities as well as regular monthly luncheons and special events.

Further information is available from Mrs. Forest Erwin, club president, home phone 444-0042, or Mrs. Daniel Nordeck, membership chairman, 273-1140. Both Mrs. Erwin and Mrs. Nordeck are taking reservations for the tea.

The club's monthly potluck luncheon, normally held the fourth Wednesday of each month, will be held May 18 to avoid conflict with the membership tea date.

"SPACE" CARDS NOW ON SALE

A limited supply of plastic-coated "space" playing cards are being sold at cost (65 cents) at CRA Clubhouse and at employe services offices at Kearny Mesa, Lindbergh Field, and Stromberg-Carlson.

Triangle Players Will Stage Comedy in CRA Auditorium

First production of the reactivated Triangle Players will be the tongue-in-cheek comedy, "See How They Run," staged in CRA auditorium, Kearny Mesa.

Opening night performance is May 13 with continuing performances each Friday and Saturday evening at 8:30 p.m. through June 4.

Cast in leading roles are Gina Martino, Susan Sage, David Patlaf, Gordon Samuelson, Kirk Garanflo, Donald Magnuson. Marian Bear, Jerry Archer, Tom Kilroy and Joe Moore fill strong supporting roles.

William Irish, who carried the male lead in the drama club's last production, "Present Laughter," is directing. Irish has been nominated for Associated Community Theatres' Best Actor Award of 1965-66 for his "Present Laughter" performance.

Special reduced rates of $1 for general admission and $1.50, reserved section, are available to all General Dynamics employes.

Tickets may be purchased at CRA Clubhouse, employe services outlets at Kearny Mesa, Lindbergh Field, Plant 19, Stromberg-Carlson, Electronics, and at the engineering mailroom, third floor, Bldg. 51, LF.

GD identification will be required of employes who buy tickets at the door on performance nights.

Information about the Triangle Players may be obtained from Kirk Garanflo, Kearny Mesa ext. 3001.

Baseball Drawing Deadline Is May 11

Entries in the second CRA baseball drawing of the season for free tickets to Padres' home games played this month will be accepted at all plant locations until next Wednesday, May 11.

Drawing of lucky names will be May 13.

Entries must include name, division, plant, department number, shift, plant phone extension.

Boxes are located at employe services outlets at Convair plants, Stromberg-Carlson, and Electronics; CRA Clubhouse; LF engineering mailroom, Bldg. 51; office of H. C. Medearis, Bldg. 3 mezz, Plant 19.

Shoot-Offs Mark April 17 Trapshoot At Gillespie Field

Shoot-offs were the order of the day at the CRA Gun Club's registered ATA trapshoot April 17 when five ties tangled top places at Gillespie Field.

Everett Kimball of Anaheim shot a 98 to win Class A unchallenged in the 16-yd. event. Carl Thack of San Diego broke the tie for second in a shoot-off with Joe Chilton of San Clemente. Both scored 94.

First in Class B was John Pfister of Poway, 96. John McCully of Coronado was runner-up and Terry James of El Cajon, high junior, after they tied with 94s.

Glen Fornabarger of El Cajon had to shoot off with Verne Cline of National City to take first in Class C. Both scored 93s.

C. H. Smith of La Mesa shot a 94 to nose out Bob Niebrugge of Lemon Grove, 93, for first in Class D.

High lady honors went to Irma Allison of Pacoima for an 87.

Handicap winner was Wayne Olson of San Diego, 92. Smith was second with a 91. Third and fourth spots were decided by another shoot-off between Kimball and Ed Thompson of San Diego, who both scored 90s. Kimball won third place.

A tie in the combined high lady and high junior class was decided by a shoot-off between Mrs. Allison and Sam Genzone of Newport Beach who both shot 80s. Genzone won the title.

'Foreign Coins' Theme Of Coineers Displays

CRA Coineers will display foreign coins at the May 18 meeting at 7:30 p.m. in the Convair cafeteria, Lindbergh Field.

Raymond Toy will show slides during the evening.

Raffle prizes will be a 1904P $5 gold piece, an 1888S $10 gold piece, and albums. Door prizes in the members-only drawing will be 1961 and 1962 proof sets. A BU coin will go to all attending the meeting. The usual auction will be held and refreshments served.

Club Plans Flight To Colorado River

Convair fishermen, camera fans, and other sportsmen are invited to join Bonair Flyers on a fly-in to Lake Havasu on the Colorado River May 15.

The group will make the trip in one day. They will meet for lunch, then fish, swim, or sightsee in the area. Sign-ups may be made through Lee Chastain, club president, at Kearny Mesa ext. 2055.

CONVAIR TEAMS ENTER NATIONAL SHOOT

Five Convair pistol teams competed in the National Industrial Recreation Association shoot, sponsored by the National Rifle Association Sunday, April 24. Four teams entered the .22-cal. event and one competed in the CO_2 air pellet division. Scores were mailed to association headquarters for evaluation.



RECREATION PLANNERS—Stromberg-Carlson Data Products recreation committee, from left, Nate Waddington, Jim Pascarella, Trudy Rice, George Elmore, Jack W. Swank, makes plans for coming S-C activities, including spring dance.

All CRA Facilities Open To Data Products Folk

Stromberg-Carlson Data Products employes have whole-heartedly endorsed the present arrangement with Convair Recreation Association which allows S-C employes full participation in all CRA activities and use of facilities without charge.

In a vote held by the new S-C recreation committee late last month, 94 per cent of Data Products employes elected to continue the affiliation.

S-C receives 90 per cent of the proceeds from the vending machines in the Data Products plant for its own recreational program. The remaining 10 per cent is retained by CRA as commission for audit costs, tax reports, insurance premiums, and supply of tickets for in-plant sales.

S-C funds are administered by the newly-appointed recreation committee for Stromberg-Carlson's separate activities which include the golf club, bowling and softball teams, annual picnics and dances. A spring dance is planned as the next S-C social event.

In addition, all Stromberg-Carlson employes are entitled to participate on an equal basis in the over 40 sports and hobby groups supported by CRA. And, they are privileged to use all CRA facilities, such as CRA Clubhouse and Missile Park at Kearny Mesa, Pine Crest mountain resort, Pecan Park picnic grounds, Gillespie Field gun ranges, boat building facility, sports car shop, rockhound workshops.

Serving on the S-C recreation committee are J. W. Swank, manager of industrial relations, chairman; Nate Waddington of engineering; Jim Pascarella of operations; Trudy Rice of blueprint control; and George Elmore of quality assurance.

Garden Club Spring Rose Show Attracts 1,500 Spectators

Two Convair couples won most of the "best of show" honors for their entries in CRA Garden Club's annual Spring Rose Show which drew at least 1,500 spectators to the Floral Association Bldg., Balboa Park, on April 24.

Mr. and Mrs. Charles Lewis (he's in Dept. 250) took top awards for best three blooms and grandiflora. Carolyn (Dept. 966) and Jim Buman garnered best bloom in show, best arrangement and best florabunda titles.

Other "best of show" winners were Mr. and Mrs. John Jodka (Dept. 191), three florabunda; Mr. and Mrs. W. J. Cole (Dept. 041), three grandiflora; Dian Lewis, daughter of Charles Lewis, best children's entry; and Bill Spann, son of Helen Spann (Dept. 964), best corsage.

"Rose exhibits were superior," said Commissioners Everett Henderson and Gene Zimmerman. "We had some of the best displays we've ever had entered in a club show."

A total of 477 exhibits were entered—404 rose entries; 53 arrangements, seven corsages, and 13 children's entries.

Other winners were: Esther and Charles Barksdale, Mr. and Mrs. Felix White, Mr. and Mrs. W. K. Spann, Bill Spann, Stuart Williams, Clarice and Jack Sinnott, May Dian Schell, Mr. and Mrs. A. E. Hornby, Robert Franc, Lucille and Ray Sharman, W. H. Marshall, G. T. Bales, Grace and Gene Zimmerman, Margaret and Henry Boyd, Norma and Bob Bradshaw, Ted Cross, Morris Beck, Lora Lee and Ray Young, O. J. Williams, Carol and Charles Ulrey, Arnold Carroll, Mollie Dowell, Marie Cross, LaVonne Splinter, Dennis Zimmerman, and J. E. Henderson.

* * *

Mollie Dowell Wins Rose Show Honors

Three members of the Convair Garden Club were top winners with their entries in the San Diego County Rose Show April 17.

Mollie Dowell (Dept. 130-5) received the society's perpetual trophy for best arrangement in show, best-of-section awards for novice and amateur entries, and four blue ribbons. It was her first try in show competition. Carolyn Buman (Dept. 966) had best of section in advanced arrangement section. Charles Lewis (Dept. 250) won best of section with his entry of roses.

Convair Bike Club To Tour Coronado

Convair Bicycle Club will tour Coronado this Saturday morning, May 7, starting from the ferry parking lot on the San Diego side at 8:30 a.m.

Cars may be parked free and charge for the ferry trip is 10 cents apiece each way.

The cyclists will wheel through Coronado, down Silver Strand to Imperial Beach and return. Entire trip will take about three hours, according to Joe Olander, trip leader.

All General Dynamics employes and their families are invited to join the tour.

WOMEN GOLFERS PLAN BEST BALL

GD Women's Golf Club will play a best-ball-of-partners tourney Saturday, May 14, over Mission Bay course. Tee-off time is 8 a.m. Members will meet after the match for election of officers and short business session in the clubhouse.

IRC Fashion Show Will Be at Hilton

Reservations are being taken now at all GD employe services outlets to the annual IRC fashion show, which will be May 25 in the Bounty Room of Hilton Inn on East Mission Bay Drive.

Several Convair models will show styles.

Spectators may make reservations for a 6 p.m. dinner preceding the show at $4.50 a person, or for dessert and coffee at 7 p.m. at $1.50 each. Tickets are on sale at CRA Clubhouse; Convair, Stromberg-Carlson, Electronics employe services; engineering mailroom, third floor, Bldg. 51, LF; H. C. Medearis' office, Bldg. 3 mezz, AF Plant 19.

Reproduced on this page is another in a series of advertisements, placed by General Dynamics recently in a number of prominent national publications.

Tactical Missiles: A report from General Dynamics

Evening the odds against surprise attack:

Even for those who weren't there, newsreels of World War II and the Korean War have made this scene familiar:

Troops are moving along a road or field. Suddenly, an enemy plane swoops out of the sky with machine guns and cannons blazing. Troops scatter for cover. A few fire at the disappearing plane—but in vain.

Today, the foot soldier does not have to head for cover. He has an equalizer. Now the scene would go like this:

An enemy plane is seen in the distance. An infantryman shoulders a weapon that resembles a bazooka. Through an eyepiece he sights the plane, squeezes a trigger and a missile whooshes out of the tube. Seconds later, the plane explodes.

Such a weapon is now moving into the hands of field troops. It is made by General Dynamics and called Redeye. It is a tactical guided missile designed to be used by one man.

The bullet that gets a second chance:

A bullet or shell is affected by gravity and wind, but, by and large, once fired it continues in the direction it was originally pointed.

A sharp eye, a steady arm and an accurate gun are all you need to hit a stationary target.

A moving object has to be "led"—the gunner judges where the moving object will be in a few fractions of a second and points his bullet there.

But to "lead" an airplane traveling at the speed of sound, miles high and able to change its direction in a hurry, you need a guided missile.

An effective surface-to-air weapon must be capable of fast reaction. Its warhead must be powerful enough to destroy an attacking plane. Its speed and range must be enough to reach the attacking aircraft before the plane's offensive weapons can be launched against ground troops.

But the real key is in the word *guided*.

The guided missile, like its evasive target, can be steered and sometimes steer itself. In fact, you might call a tactical guided missile a "bullet that gets a second chance."

Let's take a look at three produced by General Dynamics—Terrier, Tartar as well as Redeye—to see how some tactical missiles work. All are essentially defensive weapons.

Terrier and Tartar are supersonic, solid-fueled missiles used by the United States Navy. Both have what is known as "semi-active homing" guidance. This involves a complex of shipboard radar and computers, combined with sensing, computing and controlling devices within the missile itself.

When search radar aboard a ship finds an oncoming target, a radar illumination beam, controlled through a central computer, seeks out the attacking plane. The radar waves reflected from the airplane are picked up by a sensor in the nose of the missile, which will chase its target to intercept even if the plane changes course several times.

Terrier:

Terrier is the bigger of the two. On its launcher aboard a Navy cruiser, it is about 27 feet long. The first 15 feet are the missile proper. The second 12 contain a booster rocket for propulsion.

Terrier is always ready to go. Almost within the instant that the illumination beam fastens on the approaching aircraft, Terrier is triggered.

The booster blasts the missile off the launching rack. The finder is already receiving the reflected beam from the target. Two small charges within the missile have already ignited. Their burning gases turn two small turbines. One provides power for the guidance and control systems. The other operates a hydraulic pump whose fluids move the small guidance fins on the missile's tail.



Terrier (27 feet)

As the booster burns out and then drops away, a sustainer rocket within the missile proper commences firing to continue necessary velocity to intercept.

Tartar:

Tartar is similar to Terrier, but more compact (15 feet long and about 1,200 pounds compared to 27 feet and about 3,000 pounds for Terrier).

Its booster and sustainer are combined into a single-rocket engine. When Tartar gets its signal, the engine generates high initial thrust to shoot aloft, then reduces its force to provide the long sustained velocity to reach and chase a distant target.

Both Terrier and Tartar, in spite of their size, can be fired repetitively almost as fast as a bolt-operated rifle.

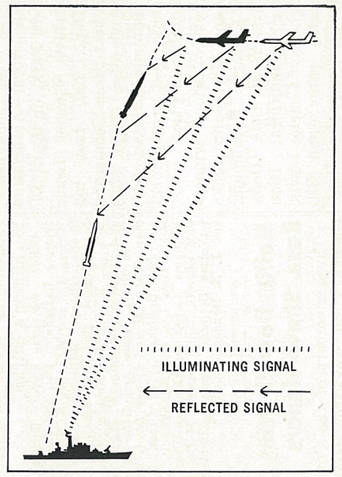


Diagram shows how missile changes course as the target changes course

Stored in automated magazines, they can be lifted onto a launcher, hooked into the central computer radar control and fired within seconds.

Ships equipped with Terrier or Tartar can defend themselves against an armada of attacking aircraft today far more effectively than would have been possible against a single aircraft ten years ago.



Tartar (15 feet)

Redeye:

Redeye is designed to destroy low-flying aircraft rather than high-altitude supersonic attackers. Four feet long and three inches in diameter, it weighs only 28 pounds complete with its launcher.

Redeye's heat-seeking guidance is wholly self-contained. Reaction time is little more than it takes the soldier to lift the launcher to his shoulder, find the attacking aircraft in the sighting scope and squeeze the trigger. By that time, Redeye's infrared sensor has locked onto the source of heat it must follow.

A small charge projects the missile from its launching tube. At a distance far enough to protect the soldier from rocket blast, a fuse lights the major rocket charge. Miniature computer circuitry within the missile directs a set of steering fins which enable Redeye to change direction as necessary and chase the target at supersonic speed until it intercepts it.

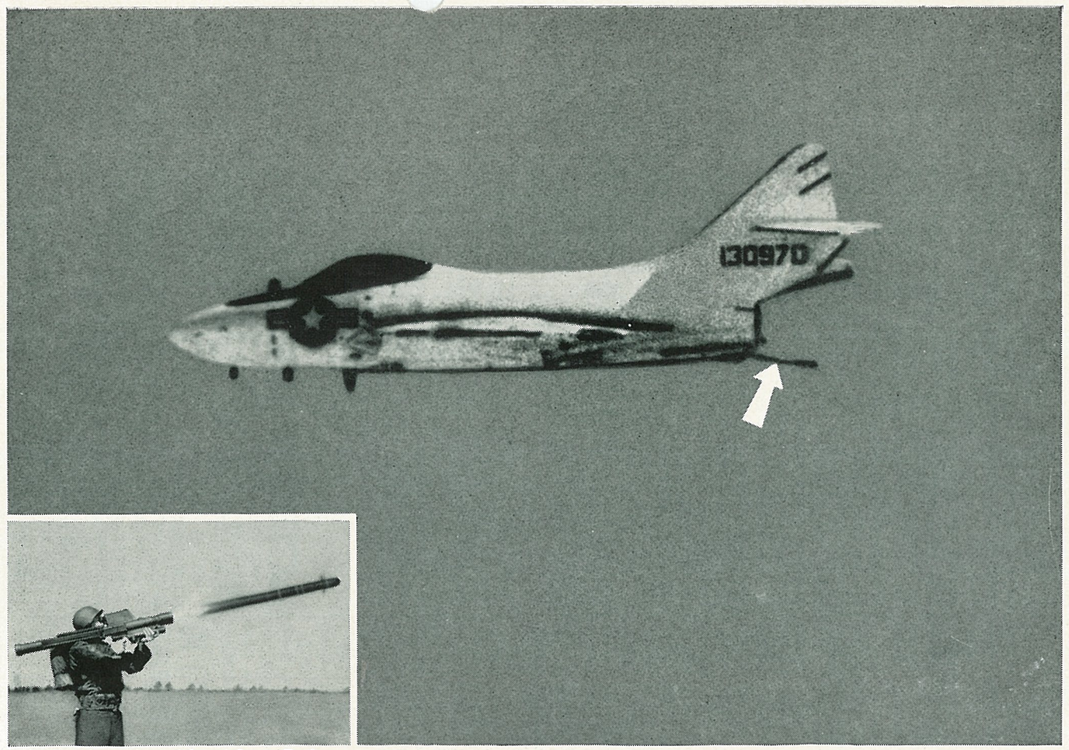


Redeye missile (4 feet)

During the long history of combat, the advantage of surprise has almost invariably lain with the attacker. The modern tactical missile now more than evens the odds for the defender. At General Dynamics we are already developing newer ones with still more punch.

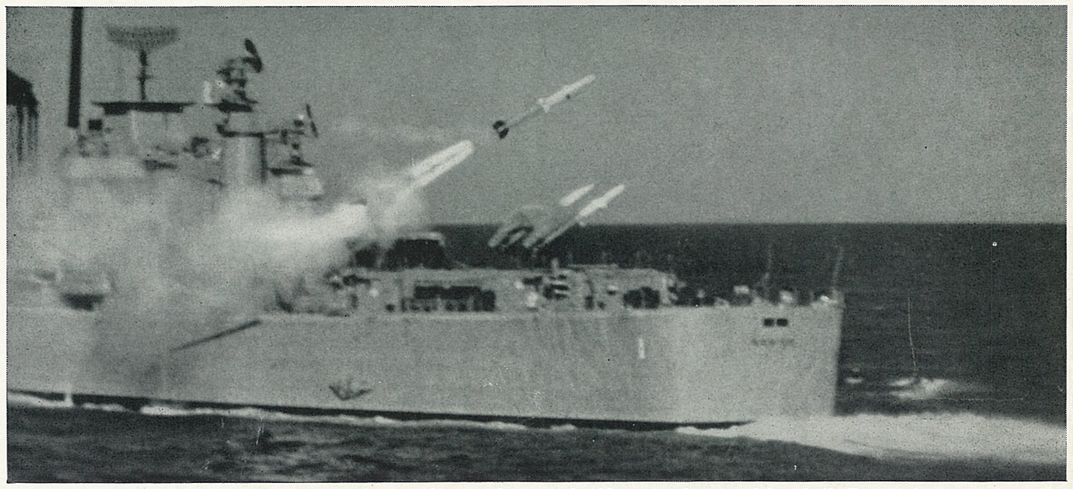
General Dynamics is a company of scientists, engineers and skilled workers whose interests cover every major field of technology, and who produce: aircraft; marine, space and missile systems; tactical support equipment; nuclear, electronic and communication systems; machinery; building supplies; coal, gases.

GENERAL DYNAMICS



1. An infantryman (above) fires a Redeye missile at a target drone airplane.

2. This is an actual photo of a Redeye missile (arrow) entering the jet exhaust of a drone airplane. Immediately after this photograph was taken, the plane exploded.



Above: Cruiser fires a Terrier. **Right:** Diagram shows radar waves sent from a ship and reflected from a plane being received by sensor in nose of the missile. Even if the plane takes evasive action, the missile will change course to intercept.

Excellence of Convair Work on C-141 Earns High Lockheed Praise

SAN DIEGO EDITION

GENERAL DYNAMICS
NEWS

Vol. 19, No. 10 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, May 18, 1966

Quality Cited As Lockheed Honors Convair

Convair division of General Dynamics Corporation received the first recognition for high standard of quality given a major C-141 subcontractor by Lockheed-Georgia Co. in ceremonies last week at San Diego.

Termed a "significant milestone" in Convair's C-141 empennage program, the award pointed up quality of workmanship on tail sections under construction at Convair for the huge Air Force jet cargo transports.

John P. McCarthy, Lockheed-Georgia director of materiel, in presenting the framed certificate to Convair General Manager Jack L. Bowers, said, "At no time during the 'marriage' of Lockheed-Georgia and Convair over nearly five years has there been any question about the quality of performance in design and workmanship on the empennage.

"That quality is due to good management, but more than that, it is due to the quality of the people involved in the product.

"Quality can not be inspected into a product. It must be built in!"

McCarthy said that although he was awarding the plaque that day, "the true award of quality was made on March 17 when the contract for the C-5 empennage was awarded to Convair."

He explained that only eight of the some 6,000 subcontractors on the C-141 have received similar recognition, and, of these, Convair is the only major subcontractor so far to be singled out. Quality of workmanship is determined solely by results of intensive evaluation of the product when it is received at the Lockheed-Georgia Marietta plant.

Special credit was given the Convair C-141 production operations, directed by N. P. Pearson.

McCarthy concluded, "Lockheed pays tribute to the excellence of the product and to the individual quality by which Convair has substantially contributed to the Air Force's C-141 program. Over a hundred of the cargo planes are now in service, flying back and forth between Saigon and this country transporting troops, material, and wounded."

In accepting the certificate, Bowers said that the Lockheed-Georgia tribute is "ample proof that our customers really mean it when they demand quality performance" and that such per-

(Continued on Page 2)



J. J. Graham



E. J. LeFevre

New General Dynamics Vice Presidents Named

Appointment of two new vice presidents of General Dynamics has been announced by Roger Lewis, president.

They are John J. Graham, formerly a vice president of Curtiss-Wright Corp., and E. J. LeFevre, manager of the General Dynamics field offices, who has been with the Company since 1951.

Graham will be concerned with Corporate development. "He brings to General Dynamics a broad background in electronics-defense, space and commercial," Lewis commented. "He will be of tremendous assistance to all of us in planning the long-range growth and development of General Dynamics."

Graham has had nearly 20 years of experience in the aerospace and electronics industries. A native Philadelphian, he joined the Radio Corporation of America in 1947 and rose to the position of vice president and general manager of its Communications and Controls division in Camden, N. J.

In December, 1961, he joined International Telephone & Telegraph Corporation in New York City, where he was a vice president and area general manager for North America and a member of the board of directors. He was responsible for all ITT product activities, including those for the defense and space fields, telecommunications and general industrial products.

Since October, 1964, Graham has been with Curtiss-Wright Corporation as a vice president and has been president and general manager of its Wright Aeronautical division.

He is a graduate of the University of Pennsylvania.

LeFevre, who is based in Washington, D. C., directs activities of General Dynamics field offices in 16 locations in the United States.

LeFevre first joined Convair division in August, 1951, as assistant to the vice president for product planning.

He was assigned to the Washington office of the Corporation in August, 1958, as manager of Air Force programs. He became manager of the Washington office in September, 1961, and assistant vice president and general manager of field sales operations in April, 1964.

LeFevre was graduated from Pennsylvania State University in 1948 and was with E. I. du Pont de Nemours at Wilmington, Del., before joining General Dynamics.

640 Demonstrated in Europe For Airline, Govt. Officials

Airline, government, and military officials in three European countries had their first look at a Convair 640 during a recent series of demonstration flights which took the turbine-powered transport from Amsterdam to Stockholm, Paris, Madrid and back to Amsterdam in four days.

The first Convair 600/640 to go into use in Europe, modified for Martin's Air Charter of the Netherlands, was demonstrated to officials and pilots in Sweden, France, and Spain in an accelerated flight program April 19-22. Airlines were Scandinavian Airlines System, Linjeflyg (LIN), Air France, Air Postal of France, Iberia, and Aviacion y Comercio (Aviaco).

General Dynamics men accompanying the tour said that they were more than satisfied with performance and reception of the craft. It averaged about 7 hours a day in the air on exhibition flights lasting from half-an-hour to two hours. There were no mechanical delays.

Convair pilot, R. T. LeVine, had the Convair 640 aloft a total of 27 hours, 52 minutes, during

(Continued on Page 2)



LOCKHEED AWARD—John P. McCarthy, director of materiel for Lockheed-Georgia Co., presents "high standard of quality" certificate for performance on C-141 empennage to Convair General Manager Jack L. Bowers (left). Ceremony was May 11 in Convair's C-141 production area at Lindbergh Field plant.

Lewis Reports Rise in Sales

General Dynamic sales were up 17 per cent and earnings up 29 per cent for the first quarter of 1966 over a comparable period last year, President Roger Lewis told stockholders at the annual meeting in Fort Worth April 29.

First-quarter sales for the period ending March 31, 1966 were $404,960,000, compared with $344,442,000 in the first quarter of 1965.

Net income for the first quarter in 1966 was $9,255,000, equivalent to 84 cents a common share after provision for dividends on preference stock, compared with $7,140,000 equivalent to 59 cents a share for the comparable period of last year.

"We expect 1966 to be a good year, somewhat better in both sales and earnings than 1965," Lewis said.

Lewis reported that 13 development F-111s — 10 Air Force and three Navy versions — are now flying, and that all 23 test aircraft are expected to be in the air by the end of the year.

The initial phase of the F-111 program calls for 504 aircraft, Lewis noted.

In addition, he said, a proposed fleet of 210 FB-111s, plus spares and attrition aircraft, has been announced by the Department of Defense.

In other aircraft developments in the Corporation, Lewis reported, Convair division was awarded a $40 million subcontract for empennages for the C-5A.

The division is continuing to convert Convair 240-340-440 passenger transports to turbine power. And Lewis expected the sales effort to reap "good results" once a new Federal Aviation Agency certification for improved performance has been received.

At Canadair, Lewis said, development continues on the vertical and short-takeoff-and-landing CL-84.

The Corporate president said that marine work — second largest category — involved action on several fronts.

This included building of three new ballistic-missile submarines, known as Polaris subs, and overhauling three others. In addition, the Corporation has 10 attack submarines under construction or contract, and has been apparent low bidder on four more.

Lewis called the Quincy Yard — which now has full status as an operating division — a "major



Roger Lewis

factor" in the Corporation's expanding marine work.

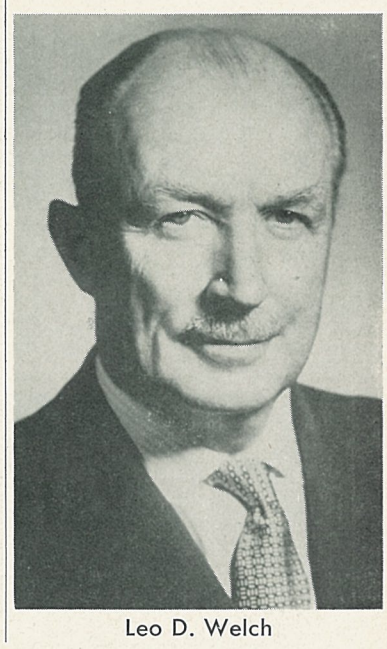
"We have contracts for nine large ships for the U. S. Navy, ranging in size from 18,000 to 37,000 tons displacement," Lewis said. This figure did not include three Apollo Instrumentation Ships being completed at Quincy.

Lewis said the Corporation's newly formed Marine Systems Group will "help us concentrate our full marine design, production and management capabilities on such potentially large programs as the Fast-Deployment Logistic Ships currently contemplated by the U. S. Navy." General Dynamics is one of five companies competing for this program.

In other areas, Lewis reported substantial new orders for tactical radio systems and guided missiles.

Directors Re-elected To Dynamics Board

Re-elected to the Board of Directors were: William C. Bolenius, H. S. M. Burns, Sylvan C. Coleman, B. Emmet Finucane, I. M. Laddon, Donald N. McDonnell, Maurice T. Moore, David Packard, John A. Sargent, and Roger Lewis. Named to the board for the first time was Leo D. Welch.



Leo D. Welch

Leo D. Welch, Former Comsat Chief Executive, Joins General Dynamics Board of Directors

Leo D. Welch, formerly chairman and chief executive officer of Communications Satellite Corp., has been elected to the Board of Directors of General Dynamics Corporation.

Welch, a native of Rochester, N.Y., joined the First National Bank of New York soon after graduation from University of Rochester and was assigned to the branch at Buenos Aires. Later he became managing supervisor of the bank's branches in Chile, Argentina and Uruguay and in 1943 became vice president in charge of the bank's Carribean operations.

He joined Standard Oil Co. (New Jersey) in 1944 as treasurer, became a director in 1953 and was named chairman of the board in 1960, serving until he took the chief executive post of Comsat.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between May 15 and May 31.

Thirty-year: Dept. 104-5, R. I. Morse; Dept. 405-0, J. L. Busby; Dept. 566-2, C. L. Hibert.

Twenty-five-year: Dept. 001-0, S. Boyd; Dept. 041-0, J. S. Butina; Dept. 130-1, F. H. Schoolcraft; Dept. 149-1, J. W. Waller; Dept. 193-3, J. E. McCambridge; Dept. 250-5, C. P. Zarrad; Dept. 300-3, J. R. Heriot; Dept. 400-2, O. L. Hunley; Dept. 733-0, S. Serrano; Dept. 758-0, G. J. Leggott; Dept. 847-4, W. A. Moss; Dept. 957-0, E. H. Ulsund.

Twenty-year: Dept. 057-0, S. D. Berling; Dept. 300-2, C. C. Winther; Dept. 300-3, R. B. Lawson; Dept. 420-8, L. B. Raper; Dept. 532-0, A. R. Perl; Dept. 575-3, S. Jurchenko Jr.; Dept. 732-0, E. T. Gregory; Dept. 976-3, L. M. Dendinger.

Fifteen-year: Dept. 101-7, W. H. Grimes; Dept. 127-0, R. L. Heath; Dept. 130-1, E. C. Bernhard, G. C. Brown, D. R. Frisk; Dept. 140-1, E. H. Starns; Dept. 142-1, E. K. Ames; Dept. 195-0, J. C. Perry Jr.; Dept. 508-0, G. A. Jarvis; Dept. 524-0, I. K. Armistead; Dept. 566-3, D. G. Krause; Dept. 580-3, E. W. Boteler; Dept. 744-0, C. E. Davis; Dept. 780-4, J. F. Brombly; Dept. 816-3, T. K. Bishop; Dept. 819-0, P. I. Baker; Dept. 833-1, J. H. Wilson; Dept. 833-2, H. E. Hayes; Dept. 835-1, R. Chavez; Dept. 850-1, L. J. Costello; Dept. 950-8, W. D. Snell; Dept. 951-9, E. R. Wynn; Dept. 954-1, H. H. Mekemson; Dept. 954-2, O. S. Gjerset; Dept. 964-5, G. Chasinowitz; Dept. 966-3, G. D. Weatherall; Dept. 976-3, D. E. Burson; Dept. 988-6, C. J. Boeldt Jr.

Ten-year: Dept. 101-2, A. A. Dodd, Dept. 101-6, R. E. Williams; Dept. 170-1, B. S. Gamson; Dept. 130-1, G. H. Hodges, R. G. Maler, R. M. Raymond; Dept. 141-4, J. J. Curci Jr.; Dept. 142-1, W. H. Bishop Jr., A. Gregori; Dept. 143-2, R. M. Wexler; Dept. 143-3, A. E. Kammann, M. V. Sponsler; Dept. 191-0, H. D. Kielmeyer; Dept. 193-3, A. M. Grace; Dept. 194-0, D. H. Leonard; Dept. 250-1, G. S. Brooks; Dept. 250-2, D. D. Sturhann; Dept. 250-3, A. Widmer; Dept. 250-4, G. J. Kleber Jr., W. T. Walker; Dept. 300-2, M. Smith; Dept. 400-6, T. E. Njos; Dept. 405-0, B. L. Lange; Dept. 420-7, P. G. Matousek; Dept. 454-0, C. W. Greenlee; Dept. 491-0, J. H. Mang.

Dept. 506-1, M. L. Woods; Dept. 507-0, T. C. Stark; Dept. 524-0, S. V. Wallace; Dept. 524-3, A. Munchweiler; Dept. 541-0, G. S. Fletcher; Dept. 565-1, D. I. Koffler; Dept. 574-2, R. D. King; Dept. 574-6, M. A. Dutcher; Dept. 591-0, V. D. Stewart; Dept. 731-0, P. B. Flores; Dept. 733-0, C. F. Ratsch; Dept. 744-0, R. L. Gorman; Dept. 780-1, G. H. Ahlgren, E. M. Burns, C. G. Collins, N. Moffett Jr., W. E. Thompson, C. C. Vazquez; Dept. 780-2, E. L. Escherich, R. E. Moore, J. M. Rowan, W. L. West; Dept. 780-3, A. A. Matousek, J. B. Royer, D. Williamson.

Dept. 816-3, E. J. Adamov; Dept. 816-4, W. R. Stanley; Dept. 833-1, F. Le Ribeus, A. L. Mallory, R. L. Smith; Dept. 833-2, F. M. Hadaway, D. W. Huss; Dept. 847-1, A. R. Hermann; Dept. 850-1, H. Christerson, S. O. Stout; Dept. 954-1, D. L. Fleury; Dept. 950-8, T. Pronne; Dept. 964-5, E. M. Parker; Dept. 967-3, J. Ugrob; Dept. 973-3, G. Munoz; Dept. 978-0, D. D. Lang; Dept. 979-1, W. L. Jones Jr., H. H. Packer Jr.; Dept. 979-2, B. Sweet; Dept. 979-3, B. B. McClure; Dept. 979-5, A. W. Billitti; Dept. 985-0, R. J. Cairns Jr.; Dept. 985-1, A. Cota, J. L. McDermott; Dept. 985-4, S. H. Tufts; Dept. 987-0, J. M. Rodrigues; Dept. 988-4, W. F. Faupel; Dept. 988-5, C. H. Anderson; Dept. 988-7, C. M. Hay; Dept. 988-8, E. P. Ford; Dept. 989-0, J. Cooney.

ELECTRONICS

Fifteen-year: Dept. 40720, C. E. Overhulser; Dept. 40750, H. H. Champlin; Dept. 68670, R. A. Harwood.

Ten-year: Dept. 68530, R. M. Jacobs; Dept. 68670, E. O. Campbell, T. R. Woods; Dept. 75490, W. G. Strong.

STROMBERG-CARLSON

Twenty-year: Dept. 8710, F. L. Nuzzo.

Fifteen-year: Dept. 8110, D. F. Jackson.

Ten-year: Dept. 8621, G. G. Bair.

Awards

CONVAIR

Employe Suggestion awards approved for the week ending April 29.

Dept. 015, H. B. Wilson; Dept. 019, F. O. Vogt; Dept. 024, R. E. Cloud, C. L. McNeal; Dept. 041-0, J. L. Rinner Jr.; Dept. 101-4, F. S. Pierce; Dept. 141-2, W. J. Knox; Dept. 400-1, G. M. Hood; Dept. 732-0, E. G. White; Dept. 759-0, L. O. Marine, J. R. Weaver; Dept. 816-4, L. H. Barber; Dept. 832-1, N. L. Acosta; Dept. 836-1, C. D. Duncan, E. W. Fenwick; Dept. 979-3, E. J. McGee.

Personals

CONVAIR

Your kindness at the death of our husband and father is more deeply appreciated than any words of thanks can express.

Mrs. Robert E. Cox and sons.

Deaths

CONVAIR

SPIEKER—Joseph P., Dept. 057-0. Died May 2. Survived by wife, Bertha Marie; two sons, Joseph P. Jr. (Dept. 956-0), and Ferdinand B.; six grandchildren; four sisters.

VANDENBERG AFB

CROWE—Lelvin, Dept. 985-1. Died April 25. Survivors include wife, Zeather.

General Dynamics News

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Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

Papers Presented

CONVAIR

HEATHMAN — J. H., Dept. 581-5. "Hydrogen Tankage for Hypersonic Cruise Vehicles," AIAA/ASME 7th Structures and Materials Conference, Orlando, Fla., April 18-20.

LANGFORD — G. J., Dept. 491-0. "Correcting Leaking at Fusion/Resistance Seam Weld Intersections," American Welding Society's annual national meeting, Cleveland, Ohio, April 18-22.

LINDEM — E. A., Dept. 130-3. "A Demonstration Workshop of Value Engineering in Capsule," Society of American Value Engineers' 1966 national convention, Miami Beach, Fla., April 25.

MYERS — B. F., Dept. 596-0. "Measurement of the Rate and Spectral Distribution for the Radiative Combination of Atomic Oxygen and Carbon Monoxide," AMRAC meeting, Arlington, Va., April 18-20.

SEXEY — M. J., Dept. 142-2. "Decentralized Maintenance," Instrument Society of America's first National Symposium of Maintenance, Wilmington, Del., April 18.

SHERMAN — M. M., Dept. 565-0. "Engineering Quality Motivation," and "Integrated Engineering Release System," Conference of Aerospace Administrative Engineers, Atlanta, Ga., April 29.

Presenting papers at 37th Annual Scientific Meeting of Aerospace Medical Association, Las Vegas, April 18-21, were: J. R. BURNETT and R. C. ARMSTRONG, Dept. 592-0, "Bioengineering Design Constraints on a Regenerable Life Support System for Extended Space Flight"; J. F. BRADY and B. D. NEWSOM, Dept. 592-0, "Auditory Acuity Shift During Prolonged Rotary Vestibular Stimulation."

Presenting papers at 12th Annual Technical Meeting of Institute of Environmental Sciences, San Diego, Calif., April 13-15, were: N. E. BERETT, Dept. 943-2, "Environmental Shock Spectrum Analysis"; J. F. BRADY and B. D. NEWSOM, Dept. 592-0, "Pilot Control Testing in an Altered Force Field Using a Cockpit Mockup Within a Revolving Simulator"; R. N. HAGER JR., Dept. 578-1, "Thermal Vacuum Testing—Basic Philosophy Through Data Procurement for Centaur Vehicle Components"; L. E. PENZES, Dept. 585-1, "Frequency Dynamic Response and Jettison Analyses for Jettisonable Payload Shrouds, with Application to the Orbital Astronomical Observatory (OAO) Fairing."

Presenting papers at 1966 Region Six Annual Conference of IEEE, Tucson, Ariz., April 26-28, were: G. A. BURNS, Dept. 963-6, "The Parabolic Cylindrical Waveguide"; and G. A. BURNS and L. W. DUNCAN, Dept. 541-0, "Microwave Gas Breakdown of Helium in a Coaxial Cavity."

In-Plant Training

ORIENTATION

NEW EMPLOYES — Educational services staff. Lindbergh Field, ext. 491. Bldg. 14 auditorium, Tuesday, May 24, 8 a.m. and 4:30 p.m. Kearny Mesa, ext. 1931. Bldg. 17, Room 7, Monday, June 6, 8 a.m.

PROFESSIONAL/TECHNICAL

NUMERICAL CONTROL PART PROGRAMMING — Dick Schweitzer. Kearny Mesa, Bldg. 17, Room 2, 4-7 p.m., Mondays and Wednesdays beginning May 23. For information call ext. 491 LF or ext. 1931 KM.

RELIABLE ELECTRICAL CONNECTIONS — Educational services staff. For information and quota call ext. 1931, Kearny Mesa.

AFTER-HOURS CLASSES

PROGRAMMED SELF-STUDY — A limited number of programmed texts in the subject fields of mathematics, statistics, probability, electricity, electronics, slide rule, English review, computer language and others are available in the educational services offices, Room 4, Bldg. 17, Kearny Mesa. These may be checked out for home study. Office hours, 8 a.m.-5 p.m., ext. 1931 KM.

BASIC BLUEPRINT READING—Hal Rubin in cooperation with San Diego City College. 14 weeks, 3:45-6:45 p.m., Wednesdays. Registration Bldg. 14, Room 8, Lindbergh Field. For information call Wayne Turner, LF ext. 491, or Hal Rubin, KM ext. 1931.

CRYOGENIC ENGINEERING — Karl Leonhard. Planned for Kearny Mesa plant when sufficient interest is shown. Prerequisites: minimum of 3 years toward BS degree or 5 years applied engineering experience. For reservations, call Martha, KM ext. 1931.

Retirements

CONVAIR

ANDERSON — Elmer L., Dept. 250-3. Seniority date Oct. 20, 1948, retired April 29.

EVANS — Robley D., Dept. 190-0. Seniority date June 15, 1951, retired April 29.

KERSTING — Martha L., Dept. 143-3. Seniority date Jan. 14, 1957, retired April 29.

KUEGEMAN—Edward H., Dept. 715-0. Seniority date April 3, 1947, retired April 29.

LA GRECA — Charles, Dept. 250-4. Seniority date Sept. 12, 1956, retired April 29.

MATTHEWS — John F., Dept. 193-3. Seniority date Dec. 22, 1950, retired April 29.

MORRISON — George E., Dept. 835-4. Seniority date July 10, 1959, retired Jan. 16.

REISWEBER — Edna H., Dept. 170-9. Seniority date March 16, 1951, retired April 29.

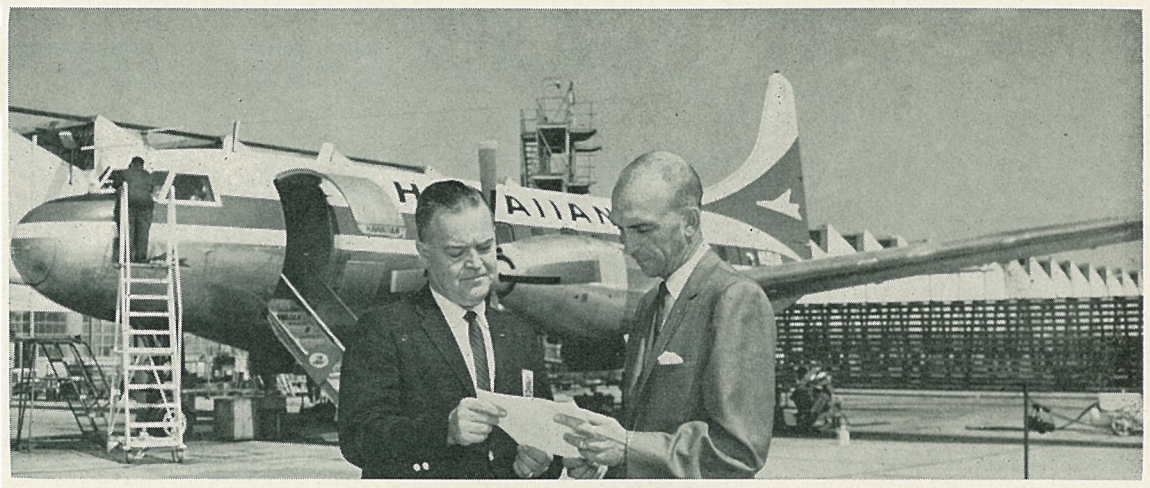
ROSS — Handel A., Dept. 619-3. Seniority date April 15, 1954, retired April 15.

WOOTEN — Georgia E., Dept. 524-0. Seniority date July 22, 1957, retired April 29.

Lost & Found

CONVAIR

LOST—Masonic ring at washstand in Bldg. 1, Col. C-25, Lindbergh Field, on May 9. Finder please return to G. W. Christian, LF Bldg. 1, Col. C-23, ext. 1324.



TICKETED—Convair's R. E. Strayer (left), in charge of 600/640 flight test program, and J. B. Hurt, Convair 600 program manager, check FAA certificate approving results of flight test program recertifying improved performance of Convair 640. Certificate was received April 26, a day ahead of schedule! Improved version was due to go into Hawaiian Airlines' service within few days of recertification.

Quality of C-141 Job Cited by Lockheed

(Continued from Page 1)

formance is only possible through complete teamwork on the part of all departments supporting a program.

Air Force Col. G. L. Fairbanks of the DCAS office at San Diego congratulated Convair on receiving the award and urged, "Keep up the good work and don't look behind—you might see someone gaining."

The May 11 presentation took place in the C-141 empennage final assembly area in Bldg. 2 at the Lindbergh Field plant before several hundred Convair employes working on the program. The 147th mated empennage served as backdrop for the speakers' stand.

Convair has contracts for 284 of the C-141 empennages with deliveries scheduled to late 1967.

CLUB NOMINATIONS SET FOR JUNE 1

Nominees for new officers of Electronics-SD Management Club will be submitted at the June 1 meeting, G. W. Leesch, club president, announced. Details and tickets are available from departmental representatives.

640 Demonstrated in Europe For Airline, Govt. Officials

(Continued from Page 1)

the four days of strenuous flying. A number of the European airline pilots flew the plane during this period.

The plane, a Convair-Liner 340 converted to turbine power with Rolls-Royce Dart engines, was obtained by Convair through an agreement with Martin's Air Charter immediately after its shake-down flight. It was rolled out of Aviolanda-Woensdrecht, Holland, overhaul center, on April 14 and was in pilot training, conducted by LeVine, for four days before taking off on the exhibition tour.

It was first flown to Stockholm for a day and a half of flights for SAS and LIN officials. A demonstration flight for nine SAS, LIN, and FinnAir pilots was also made the first day. The plane was flown to Amsterdam for refueling and on to Paris the afternoon of April 20. That evening, from 4 to 9:20 p.m., flights were scheduled for Air France and Air Postal officials and pilots. The long day ended in Madrid.

Flights on April 21 carried Spanish airline and Air Ministry officials. A press demonstration flight was made the morning of April 22, followed by a mid-day flight for a group of Spanish officials to the Feria at Seville.

The plane was back in Amsterdam that night and went into regular service with Martin's Air Charter at noon the next day on a chartered flight to Corfu, off the coast of Greece.

Airline officials making flights from Stockholm included Marcus Wallenberg Sr., first vice chairman of SAS board of directors; Karl Nilsson, SAS president; E. Boheman, speaker of the House in the Swedish Parliament and member of the SAS board; Swen Ostling, LIN president; Capt. P. O. Olemyr, LIN chief pilot.

On Paris flights were Paul Besson, vice president of technical planning and new equipment for Air France; Capt. Guy Riviere, Air France chief pilot; Jean Costes, director of Air Postal; Capt. Yves Butault, chief pilot for Air Postal.

Among Spanish officials on 640 flights were Gen. Julien Rubio, first vice president of Iberia board of directors and president of Aviaco; Emilio Gil-Cacho, Aviaco director and general manager; Mariano de las Penas, Iberia director-commercial; David F. Vegue, Iberia director-economics and finance; Carlos Texidor, Iberia director of flight operations; Enrique Alvarez de la Brana, Iberia director of material and maintenance; Fausto Bastardes, assistant to general manager of planning control and inspection for Iberia.

C. L. Meador, Convair special assistant on commercial aircraft programs, and P. M. Prophett, Convair director of marketing and service, were with the plane throughout the entire tour.

P. F. Mouritz, Convair manager of commercial sales, and M. S. Bickers, deputy 600 program manager, were in charge of demonstrations in Spain.

Other General Dynamics men taking part in all or part of the demonstrations were John Dundas, Corporate vice president-international; N. M. Abbott, Corporate European representative-airplane programs; Alejandro de Muns, Convair representative in Spain; Ted Laven, Convair's European manager of commercial sales; Wayne Eddington, Convair field service representative at Aviolanda during conversion of the Convair 640.

Rolls-Royce representatives were Mike Laycock, Dart senior sales engineer; Sir Colin Weedon; G. Axell of Sahlen & Wikander which represents Rolls-Royce in Sweden; and Alberto de Virto, director of Rolls-Royce in Spain.

LITTLE JOE II PARTY HELD

Over a hundred Convair people involved in the Little Joe II launch vehicle program gathered at the Islandia Hotel last Friday evening for a get-together and resume of the entire program. J. B. Hurt, program manager, showed movies and explained the program for the benefit of families.

Trans-Texas Reports On 600's Performance

Performance of the first Convair 600 put into passenger service by Trans-Texas Airways, Inc., was pointed up at the end of a month's operation by TTA officials in a recent communication to Convair's C. L. Meador, special assistant on commercial aircraft programs.

Henry E. Erdmann, Trans-Texas senior vice president advance planning, spells out improvement of the Convair 600 "Silver Cloud" over the Convair 240, after a month in service over Trans-Texas' routes. The airline placed its first Convair 600 in operation on March 1 on flights connecting Texas cities (**GD/NEWS, March 23, 1966**). The 600 was in the air longer — over 10 hours a day to the 240's average of 6 plus hours — carried more passengers, and had less down time.

Erdmann summed up Trans-Texas' initial experience with the Convair 600 thus: ". . . with the reliability of the Dart airframe combination, we feel sure that the program will continue to represent a worthwhile investment."

Trans-Texas has purchased 25 modification kits from Convair for conversion of its fleet of Convair 240s to the turboprop version powered by Rolls-Royce Dart engines. Modification is under way at Trans-Texas' Houston facility.

★ ★ ★

Mr. C. L. Meador
Convair division, General Dynamics
San Diego 12, California
Dear Chet:

As you know we started service with our Silver Cloud aircraft on March 1 of this year. I felt that the following brief statistics covering the operation of our first Dart powered aircraft during March would be of interest to you.

We operated our Silver Cloud 261 hours averaging 10.25 hours a day over a 6 day week. We boarded 4,461 passengers with load factor slightly in excess of 50%. We flew a total of 59,280 miles averaging 2,270 miles a day.

In contrast with our experience on our first Dart powered Convair, the following are the average operating statistics for the piston powered 240 Convair for the fleet of 22 aircraft in service. We flew 6.18 hours a day per aircraft. We boarded 2,908 passengers per aircraft creating an average load factor of 42.23%. Each aircraft averaged 39,376 miles during the month for an average of 1,270 miles a day.

We of course realize, that with only one month's experience the above statistics are subject to change; but with the reliability of the Dart airframe combination, we feel sure that the program will continue to represent a worthwhile investment. Incidentally, there were no delays or cancellations of the Silver Cloud aircraft during March attributable to the Dart engine/propeller combination. The overall delays were considerably less than for the piston 240 Convair aircraft.

Sincerely,
TRANS-TEXAS AIRWAYS, INC.
Henry E. Erdmann
Senior Vice President Advance Planning

Miniature Wind Tunnel Valuable Checking Aid

A miniature wind tunnel, duplicating Convair's low speed tunnel in every respect, is going into use as a valuable aid for checking out improvements destined for the full scale tunnel.

As more demanding test conditions are required in development of advanced high-lift jet aircraft, capabilities of the division's wind tunnel must be constantly up-dated, J. H. Struthers, aerodynamics lab group engineer in charge of the wind tunnel, explained.

Installations designed to improve air flow in the full scale tunnel can be checked out in the 1/12-scale model for desired results before expensive changes are made to the full scale tunnel.

Although the tunnel model is twelve times smaller than the low speed wind tunnel, air speeds and pressures are the same. Some 1,100 pressure orfices ring the top, bottom, and sides of the model to measure pressure at any station along the center lines. An air speed indicator will be installed within the large test section to take pressure readings for calculation of velocities and pressures. Various devices, such as screens, vortex generators, and flaps, will be positioned in the diffuser during flow optimization studies. The best configuration obtained from model tests will be installed in the full scale tunnel.

A motor-driven fan, rotating up to 12,000 rpm, produces the air current for the model's recirculating air flow. The 50 hp electrical motor which powers the fan is encased in a nacelle and water cooled through tubes in metal struts.

Fashioning of the six wooden propeller blades was one of the most particular tasks in the model's construction. Convair model shop workers, who built the model to wind tunnel design group's specifications, hand profiled the blades from ⅛-in. laminated maple strips. Maximum variation in weight of the blades is less than one gram and no dynamic balancing was required.

Air is circulated by the fan around the tunnel through four sets of aluminum turning vanes which direct it around the corners of the rectangular-shaped tunnel.

Air speeds to 350 mph velocity are obtained in the smaller 8x12-ft. test section. Air then flows through a diffuser section where it is reduced to a speed of approximately 120 mph at the point where it reaches the larger 16x20-ft. test section. (Equipment will be installed through a plexiglass access "door" over this test section. The rest of the tunnel is enclosed by a wooden structure.)

After passing through the test sections, air is directed back to the fan for recirculation.

"This small tunnel will be a valuable tool in design of wind tunnel improvements," Struthers said. "We will be able to obtain accurate information on proposed changes before installation and without costly down-time of the wind tunnel. Although some wind tunnels maintain similar models for the same purpose, we feel that Convair's tunnel model duplicates the entire operation of a full scale tunnel more completely than others now in use."

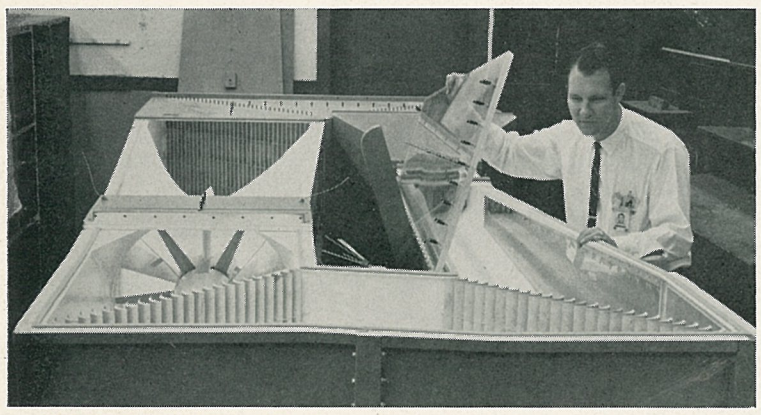
Engineers in the wind tunnel model design group under P. N. Bosch have been working out details and specifications of the model since the first of the year. Convair's model shop did the wood construction and assembly, and tool manufacturing provided metal vanes and other structural items.

Society to Hear Six Convair Men

Papers by six Convair division representatives will be presented at the 20th Technical Conference of the American Society for Quality Control next month in New York City, June 1-3.

Ben Pesta and E. G. Smith of Dept. 141-2 will present a paper on "Quality Program—A Team Effort," and W. F. McDonald of Dept. 591-0 and San Petcher of Dept. 146-3, a paper on "Information, Storage and Retrieval System."

W. H. Kirk of Dept. 141-2 will speak on "Acceptance Vibration Testing—Cost Versus Benefit" and W. F. Rice of Dept. 146-3 on "Education for Quality Control—Professional Certification."



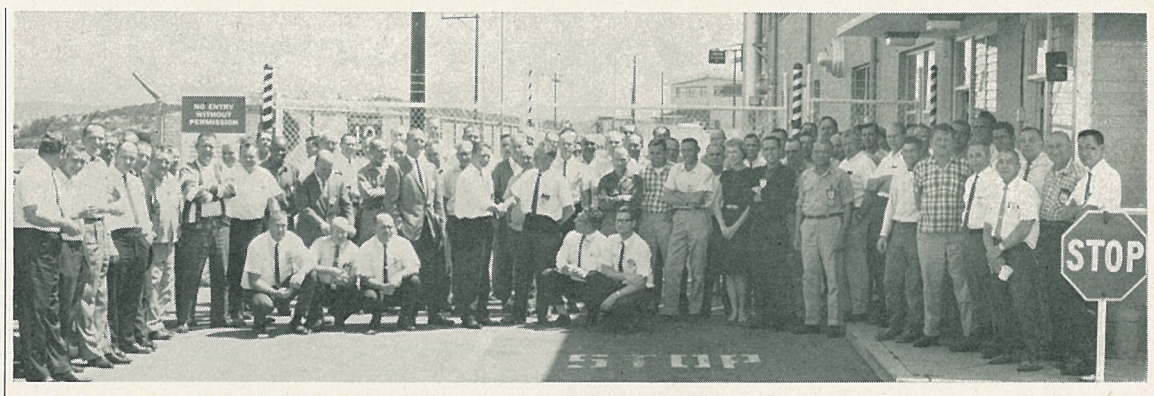
MIDGET TUNNEL—Bill Just, Convair design engineer in low speed wind tunnel model design group, raises plexiglass door of recently-completed tunnel model to point out test section where experiments will be conducted on installations for improvement of air flow in large tunnel.

People Mobility

Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

JERRY L. FOSTER (1960) from Convair division to General Atomic; **ELMER L. SUMMERSGILL** (1955) from Convair to General Atomic; **RICHARD T. MOLINEAUX** (1956) from Pomona division to design engineer senior, Convair; **JAMES W. GRAY** (1957) from Convair to Canadair; **HAROLD G. TOMLINSON** (1965) from Pomona to management relations, Fort Worth division; **DAVID M. CLOUGH** (1961) from Stromberg-Carlson, Rochester to research and engineering, Electronics, Rochester; **L. J. GREGG** (1957) from Electric Boat to vendor quality control, Fort Worth; **LOUIS O. LYTE** (1936) from Convair to program planning, Fort Worth; **WINSTON L. KLEPPER** (1957) from Convair to vendor quality control, Fort Worth; **OSCAR B. AMAN** (1960) from Pomona to electronics engineer senior, Convair; **WALTER E. MOONEY** (1951) from General Atomic to preliminary design engineer, Convair; **ALBERT ARON** (1960) from Stromberg-Carlson, San Diego to electronics engineer, Convair.



SYCAMORE CEREMONY—Phase-out of test operations at Sycamore Test Site was marked symbolically by employes gathering at entrance gate to see H. M. Brown, site manager, left in center, turn keys of facility over to Harold Hampy, who will be in charge of maintenance.

BLAKEY APPOINTED CONTRACTS DIRECTOR

C. W. Blakey has been appointed to the staff of Convair general manager Jack L. Bowers as director of contracts, effective May 10.



C. W. Blakey

He will be responsible for all activities currently reporting to C. L. Meador who is reassigned as special assistant on commercial aircraft programs, reporting to Bowers.

Meador's assignment "emphasizes the increased sales activity anticipated with domestic and foreign airlines, arising from the current success of the 600/640 aircraft program," Bowers said.

Reporting to Blakey will be contracts activities of Kearny Mesa and Lindbergh Field plants as well as aircraft service parts and contract pricing.

Blakey served as director of contracts of the former Astronautics division and has been director of government contracts for the merged Convair division. A graduate of Southern Illinois University, he has been with the Company since 1950.

Con-Trib and Mgt. Club Give to Scholar Fund

Two checks, one for $2,000 from Convair Employes' Con-Trib-Club and one from Convair Management Club education committee, have been presented to the San Diego Citizens' Scholarship Foundation.

Funds will be used for scholarships for deserving local students who need financial aid.

NASA Praises Sycamore Site's Long Record of Achievement

Convair division has been commended by NASA officials on completion of testing at Sycamore Test Site that has "contributed in a major way to the achievement of the Centaur becoming NASA's first operational high-energy upperstage vehicle."

The Sycamore Test Site operations have been phased out following a determination by NASA Lewis Research Center officials that, due to advancement in technology, static testing at the site is not now required for the current Centaur program.

Most Sycamore personnel have been reassigned to Kearny Mesa facility departments with a few assigned to the Eastern Test Range, the Combined Systems Test Stand and other General Dynamics divisions.

Nine employes remain at the site to keep it in readiness for possible future reactivation and to maintain round-the-clock security. Harold Hampy, material supervisor since the site opened, remains as site supervisor.

"I wish to express my sincere thanks and appreciation to you for a commendable and outstanding performance by the Sycamore propulsion test team personnel in fulfilling their tasks," Edmund R. Jonash, NASA's Centaur project manager, said in a recent letter to Convair division.

"Especially commendable is the team spirit that prevailed through the last hot-firing and into the base securing operation," Jonash said. "At the conclusion of this program, in spite of the site equipment age, the capability and readiness of the base to support any anticipated future programs was never greater."

Sycamore was opened in August, 1956, for what was expected to be a five-year program of Atlas missile testing. Systems tests on the first Atlas, 1-A, began in December, 1956.

The initial Atlas S-1 stand was used in Atlas A-series tests into 1958, C-series into 1959, D-series into 1960, and E series into 1962 before it was destroyed when missile 1-F exploded in May, 1962.

Stand S-2 became operational in 1958 and was used for B-series vehicles, the first with three-engine configuration, and for series D, E and F vehicles.

With Centaur second-stage development, NASA took advantage of the facilities at Sycamore and added the S-4 Centaur stand for cold-flow tests beginning in 1960 and hot-fire tests beginning in 1962. More than 200 tests were run at the stand. The last, on April 5, 1966, was a 105-second hot-firing of Centaur's propulsion system in support of the Atlas-Centaur 9 mission.

H. M. Brown Jr., Sycamore operations manager since last September and an engineer and test conductor there since its opening, said the site has been "mothballed" so that it can be reactivated quickly if needed by NASA.

"Inside Convair" Talk Set Up a Day at LF

One of the two "Inside Convair" presentations on launch vehicle programs next week will vary from the usual schedule.

The talks by Andrew Kalitinsky, assistant program director launch vehicle engineering, will be given Tuesday, May 24, at Kearny Mesa, and Wednesday, May 25, a day earlier than the usual schedule, at Lindbergh Field.

All presentations are from 4:45 to 5:45 p.m. in the cafeteria at Kearny Mesa and in Bldg. 14 second floor auditorium at Lindbergh Field. The meetings, giving detailed information on work being done by the division, are open to all employes.

The Convair 600/640 program will be discussed tomorrow, May 19, at Lindbergh Field. Maneuverable re-entry vehicles and advanced booster plans will be discussed June 7 and 9 and analog-digital-hybrid computers, June 14 and 16.

Junior High Students Inspect Plant During Mgt. Club Tours

Forty-eight ninth grade students from Memorial and Gompers Junior High Schools have visited the Kearny Mesa plant this year under a Convair Management Club student motivation program.

Two students have been brought to the plant on alternate weeks from the two schools for one of four pre-planned tours. One of the tours covered mechanical areas, one electrical areas, one engineering areas and one general department areas. Last of the tours for the current school year will be conducted next week.

The student motivation program was developed last year by Management Club's Community Relations Committee to give selected students a challenging appraisal of educational demands of industry.

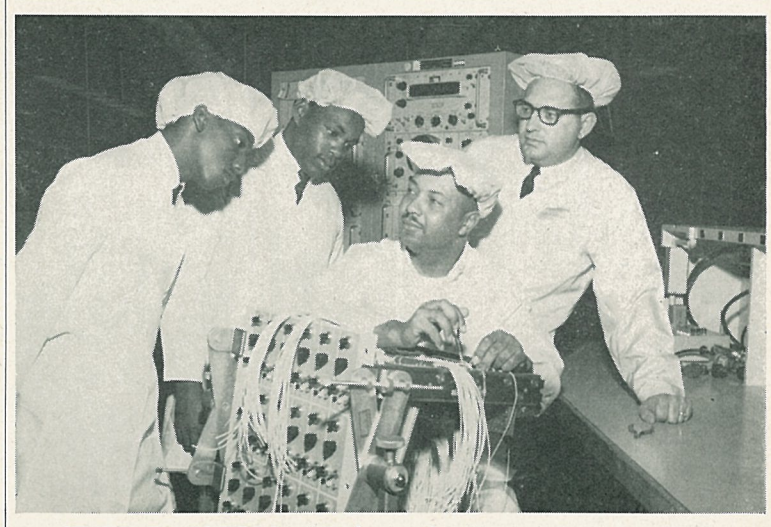
Need for high school or higher level education has been stressed.

Bruce Rakita of Dept. 142-1, program coordinator, said some of those taking the tour have been potential school dropouts.

"Some of them are excellent students but feel they should leave school as soon as possible and get a job in order to help support their families," Rakita said. "The tours give them a better concept of the educational requirements for worthwhile employment in industry."

Club members who have served as guides include George Cowan, Don Menard, W. F. Rice, Forest W. Sterling, Fred Rhodes, Charles Perdue, Don Risty, Marvin Rickling, Vince Brierley, Ray Sodomka, Vince Caldwell, Ralph Avitable, Ivan Raney, Fred Winston, Gene Ridpath, Ed Sweet, Phil Vincelett, J. P. Jones, and Rakita.

Club members who would like to serve as guides for similar tours during the next school year have been asked to phone Rakita, KM ext. 1737.



STUDENT VISITORS—Ninth grade Memorial Junior High students Lonnie Williams, 15, left, and James Allison, 15, watch Carl Robertson, electronics assembler in Dept. 780-3, wire an oscilloscope signal control chassis as J. M. Farrar, operations project engineer, looks on.

Literally Thousands From Convair Advance Education on Own Time

Thousands of Convair division employes are taking advantage of the outstanding educational facilities in the San Diego area for evening study in courses of cultural or professional interest.

Last year the division made 1,342 tuition refunds to employes (including a number of women) who are enrolled in university-level courses that are job related and that will enhance their opportunities for career advancement.

This group alone spent more than 72,500 hours of their off-duty time in college and university classrooms, earning more than 4,000 hours college credit. They received $58,933 from the division for tuition fee reimbursement.

A majority attended San Diego State College or University of California Extension courses. Others were enrolled at California Western University, the University of California at San Diego and the University of San Diego.

Hundreds of other employes took city college, junior college or adult high school classes of interest, or college-level courses that were not job related.

Jack Croft, chief of educational services, said Convair's tuition refund plan and the wide range of adult education programs in the San Diego area make it possible for every employe to improve himself through further education.

Among the employes taking advantage of the division's tuition refund plan last semester, 11 were working toward Ph.D. degrees, 88 toward bachelor's degrees and 80 in special university certificate programs.

Others were taking specific courses to help keep abreast of "state-of-the-art" developments in their own or a related career field.

Among the more popular special certificate programs are the Professional Designation and Senior Award programs in business systems management developed by the University of California Extension in cooperation with Convair.

Both are 24-unit programs designed primarily for employes concerned with processing of business information, computer techniques and management information and control systems.

Some of the courses in the two programs are given at the Kearny Mesa plant for convenience of division personnel. Among women employes attending one of the classes in data processing are Jo Corn, Barbara Fullam and Verna Hathaway, all of accounts payable Dept. 191-0.

"Everything we process goes into a computer," Miss Corn said. "An understanding of computer operations can help us do a better job every day."

Typical of employes working toward a bachelor's degree is Paul Giard, a budget analyst in Dept. 954-1 who has been a Convair employe 15 years and has been enrolled at California Western University since 1957.

Giard is majoring in industrial management and has four courses remaining for his degree. He has received the maximum tuition refund from the division each year. "Without it, I doubt that I would have made it," he said.



EVENING STUDENT — Paul Giard gets in last minute study before going to evening class at California Western University.

William P. Shine, a group engineer in pneumatics design Dept. 962-3 and the father of five young children, has attended San Diego State College evening courses four years. He received his M.S. in business administration last year and now is taking other courses he believes will be of future assistance.

Shine says the division's tuition refund program has "helped tremendously" and considers his advanced education a major factor in qualifying him for salary increases he has received.

William C. McPike, a senior test lab engineer in Dept. 578-3, is completing his thesis for a master's in business administration and also is well on his way to similar degrees in engineering and mathematics at San Diego State College.

He, too, is appreciative of the tuition refund plan that has assisted him each semester.

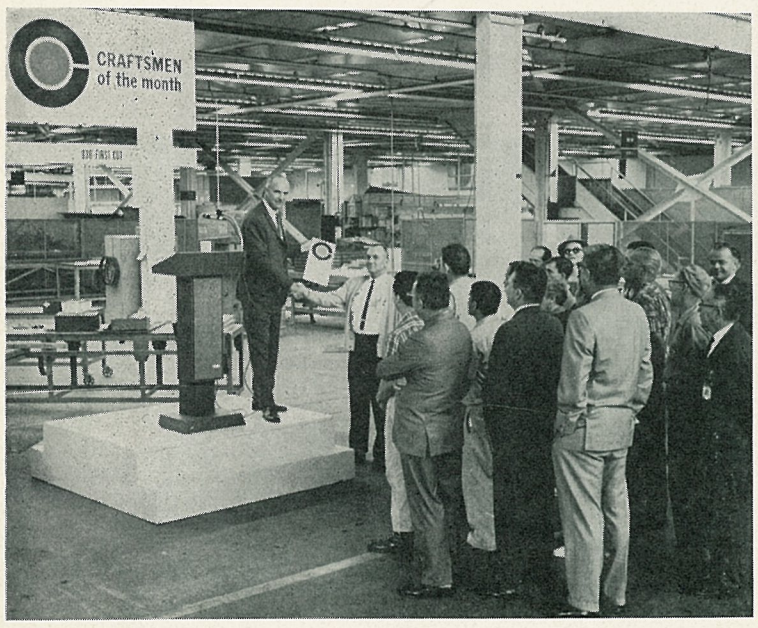
Margaretta Dolores Johnson, a comptometer operator in Dept. 191-0, has taken typing, shorthand and business machine courses four semesters at San Diego City College. "Although it hasn't been directly job related, it has been a help," she said. "I now know how to operate almost any kind of office machine."

Employes in the educational services section "practice what they preach" with seven of the 11 now enrolled in college-level courses. Dennis Suchecki, formerly with educational services, earned a degree in physics at San Diego State College and now has new duties as an electronics engineer in Dept. 551-1.

Most division employes who are continuing their education during off-duty time attend evening classes. During the spring semester, 51 have had special authorization for irregular work weeks to attend needed classes offered only during working hours. Advanced-degree students may make arrangements for 30-hour work weeks with corresponding salary.

San Diego State College offers advanced degrees in more than 40 fields. Local colleges operate on a semester basis with the exception of the University of California at San Diego and California Western University, which have a quarter system.

Details on courses offered at each of the institutions and applications for tuition refund can be obtained at educational services offices in Bldg. 17 at Kearny Mesa and Bldg. 16 at Lindbergh Field.



MARCH CRAFTSMEN—Convair General Manager Jack L. Bowers presents Craftsmanship award for March to Paul Franks, Dept. 836 assistant foreman, for first-cut operations at Lindbergh Field plant. Fifteen employes in first-cut won award with 120.7 quality index. March was first month all Convair departments at both plants were combined in single contest.

Division Style Guide Issued

A new Convair division style guide has been published by art and editorial, Dept. 126-0, to assist division personnel in preparing documents, brochures, proposals, reports, charts and slides.

"What these documents say and how they look has an effect on our customers and potential customers," Jack L. Bowers, division general manager, said in a cover letter in the guide.

"Therefore, it is important that we pay attention to accuracy, brevity, consistency, appearance and clarity in each of these different types of communication. In a word, we must adopt and retain a consistent style."

The new style guide, available from Dept. 126-0 by AVO request, is designed for use by originators of manuscripts, writers doing rewrite and editing, and typists and artists who prepare final reproduction copy. It replaces one first published June 25, 1961, and later revised.

"It provides a standard, practical format for our publications —to help give them precision, force and style," Norman Rutherford, supervisor of art and editorial, said.

"Our customers learn about the division and its capabilities from our published materials," he said. "The materials we distribute should be consistent . . ."

The guide covers Corporate and division identification and division style on spelling, punctuation, abbreviations, symbols, numbers and mathematical expressions.

S-C's Data Products Club Will Convene

New officers of Stromberg-Carlson Data Products Management Club will be seated tomorrow (May 19) at a ladies' night dinner meeting in the banquet room of San Diego Hotel, 339 W. Broadway.

Ralph Bauman of Convair, NMA director, will install Clay Murdock, president; Nate Waddington, first vice president; Bob Hayde, second vice president; Jim Stubbs, secretary; Roy Dieter, treasurer; Roy Gilmore, board member.

Zeno Klinker, Hollywood humorist, will provide the entertainment for the evening.

Social hour starts at 5:30 p.m., followed by a 6:30 turkey dinner.

Tickets are available from Management Club Boosters at the Hancock St. plant.

Winners Named In 9th Annual Math Contest

Awards for winners in Convair division's ninth annual Honors Mathematics Contest for high school students were presented at a banquet and awards ceremony May 11 in the Hilton Inn.

More than 200 students from 41 schools in the county and their math teachers and principals were guests.

Maj. Gen. Ben I. Funk, commander of the Air Force Space Systems Division, spoke on "Leadership in an Uncommon Age." Jack L. Bowers, Convair division general manager, assisted with awards.

Trevor Lewis of Pt. Loma High, highest scoring student, received a sweepstakes trophy and $100 after receiving the first perfect score in the nine-year history of the contest.

John Burtt of Grossmont High and Jack Keary of University High also received $100 grand prize awards for having highest individual scores in the county and independent school divisions, respectively.

Pt. Loma High topped other city schools, Coronado High other county schools and University High other independent schools to take home permanent trophies. Pt. Loma was overall winner for the second consecutive year.

Convair division sponsors the annual contest to stimulate interest in mathematics and to recognize mathematical ability and achievement among high school students in the county.

Skaters Schedule Ice Capades Trip

CRA ice skaters and their friends will have a chance to attend the final Saturday night performance of the Ice Capades in the Los Angeles Sports Arena May 21 at discount price.

CRA Commissioner Bud Davies has obtained a block of preferred seats at a reduced price of $4 each. Regular price is $4.50.

A dinner party is planned at the Switzerland Restaurant, a block from the Sports Arena, and a Sunday morning skate at Paramount's Iceland for those who stay overnight. Call Davies, ext. 2751 KM.

Nine-Inch Abalone Tops Diver Contest

Jim McGinnis of Delta Divers brought in a nine-inch abalone, the largest taken in a club competition dive in the last three years, in the Divers' first dive of the season April 22 at La Jolla.

His four largest abalones measured a total of 33 5/16 inches. Runners-up in the competition were Bill Howard, George Jonilonis, and David Kellogg.

McGinnis' team ended the day with 27 points, Bob Easton's team with 25, and Chuck Davis' team with 22.

Club members visited Del Mar Sunday for spearfishing.

LIGHTERS ON SALE FOR $3 EACH

Chrome-finish Zippo lighters, monogrammed with "General Dynamics, Convair Division" and carrying a lifetime guarantee, are on sale for $3 each at CRA Clubhouse, employe services offices at Kearny Mesa and Lindbergh Field and from Joyce in engineering mailroom at Lindbergh Field.

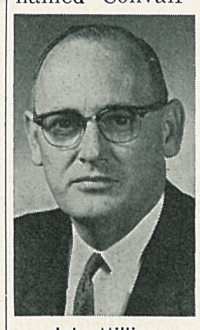
REDUCED PRICE FOR "PATCH OF BLUE"

Reduced-price tickets are on sale for GD people for the June 1 evening showing of "Patch of Blue," at Capri Theatre. Regular $2 loge seats are $1.25. Tickets are available at CRA Clubhouse, Convair and Stromberg-Carlson outlets.

Save Materials—Don't Throw Your Job Away

JOHN MILLING NOW CONTROLLER

John D. Milling, Convair manager of accounting, has been named Convair division controller, succeeding Erle Hill, General Manager Jack L. Bowers announced early this month.



John Milling

Milling was controller of the former Convair division from the fall of 1963 until the merger of Convair and Astro divisions last year. Before that he had served as assistant controller for the former Astro division for a year.

He joined Convair in 1943 as an accountant. Following Army service during World War II he returned to the company in 1946 and was named general accounting supervisor in 1951. Two years later he was appointed manager of general accounting. In 1960 he assumed responsibilities of both general accounting and cost accounting as manager of accounting at Convair.

GD Men Taking Part In Medical Meeting

General Dynamics personnel will participate in the 1966 San Diego Biomedical Engineering Symposium to be held June 6-9 in the Kona Kai Club. "From Diagnosis to Therapy" will be the symposium theme.

Dr. V. P. Guinn of General Atomic division will be chairman of a June 6 session on microdiagnostic techniques. Dr. R. C. Armstrong, chief of Convair division life sciences department, will chair a June 8 session on extreme environments and their therapeutic effects.

Other Convair personnel assisting are J. M. Hlavin, Dept. 591-0, Eric Herz, Dept. 543-2, Glen C. Egger, Dept. 146-1, A. J. Van den Akker, Dept. 595-0, and L. T. Gregg, Dept. 591-0.

Graphic Reproduction Capability Described

H. B. Day, chief of Convair graphic reproduction, described the division's reproduction operations to graphic arts students at Palomar Junior College May 13.

Talking on "In-Plant Reproduction" he showed slides comparing former equipment and methods to the present, advanced reproduction procedures.

Day's presentation was one of a series of educational programs sponsored by the San Diego Chapter of the Society of Reproduction Engineers to keep students and teachers up to date on the "state of the art" and to promote reproduction arts as a career.

Five Pass Course In Handling Boats

Five Convair division employes have been presented certificates on successful completion of a U. S. Power Squadron course in small boat handling.

They are H. A. "Pete" Beyrer, Dept. 131-7; R. M. Hill, Dept. 972-0; G. A. Jonilonis, Dept. 954-4; B. A. Rees, Dept. 545-0, and F. M. Sagabiel, Dept. 962-4.

The 13-week course was presented in CRA Clubhouse by the Helix Power Squadron with Lee Schenke of Dept. 963-8 as class chairman.

Royce Riggan Named Dance Commissioner

Royce Riggan has been named new commissioner of the CRA Ballroom Dancing activity by J. K. Field, chief of employe services.

Riggan has coordinated the activity for the last year, assuming responsibility at the resignation of former Commissioner Ludy Moeller. He and his wife, Dora Nell, joined the former ARA dance group a year and a half ago.

CRA Calendar

(For information on CRA activities call CRA Headquarters, Kearny Mesa, ext. 1111. Deadline for copy for the next issue of GD/NEWS is May 25. Call ext. 3322 KM or 1071 LF.)

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ADVENTURERS—Meeting tonight, May 18, 7:30 p.m., CRA Clubhouse.

BADMINTON — Play Mondays, 7-10 p.m., Federal Bldg., Balboa Park.

BALLROOM DANCING—New classes open to enrollment next Monday, May 23, CRA Clubhouse. Call Royce Riggan, ext. 1018 LF.

BICYCLE CLUB — Meeting May 23, 7:30 p.m., CRA Clubhouse.

BRIDGE — Play each Friday, 7:30 p.m., CRA Clubhouse. Master Point Night first Friday.

CERAMICS—Instruction Tuesdays and Thursdays, 7-10 p.m., CRA Clubhouse.

CHESS — Play each Wednesday, 7:30 p.m., CRA Clubhouse.

COINEERS — Meeting tonight, May 18, 7:30 p.m., Convair cafeteria, Pacific Hwy.

DRAMA — Play, "See How They Run," 8:30 p.m., May 20-21, 27-28, June 3-4, CRA auditorium. Tickets at reduced prices at CRA Clubhouse and employe services outlets.

FENCING — Workouts and instruction Fridays, 7:30-10:30 p.m., YWCA, 10th & C Sts.

FISHING CLUB — Salton Sea trip June 11.

GARDEN CLUB — Meeting June 1, 7:30 p.m., Floral Association Bldg. Balboa Park.

HI-FI/MUSIC — Meetings second Tuesday of each month, 7:30 p.m., CRA Clubhouse.

ICE SKATING — GD skate nights Thursdays, 6:15-7:45 p.m., Mission Valley Ice Arena. Trip to Ice Capades, Los Angeles Sports Arena, May 21. Call Bud Davies, ext. 2751, KM.

JUNIOR RIFLEERS—No club shoot May 21.

JUNIOR SCIENCE — Meeting May 20, 7:30 p.m., CRA Clubhouse.

MOVIES — Reduced prices at State Theater, Euclid & El Cajon Blvd. Admission: adults, $1; children, 35¢.

PISTOL CLUB — Club shoot May 22, 9:15 a.m., SD Police Range, Federal Blvd. and Home Ave.

RADIO CLUB — Meeting May 19, 7:30 p.m., Harbor Drive club headquarters.

SCULPTURE — Workshop sessions, Mondays, 7:30-10:30 p.m., CRA Clubhouse.

SOFTBALL — Fast pitch and slow pitch plant league play in progress, Kearny Mesa field.

SWIMMING — Family swim night May 21, 7-9 p.m., Mission Beach Plunge. Free tickets at employe services outlets.

TOASTMASTERS — Convair Toastmasters No. 3745 meet each Wednesday, 4:15 p.m., CRA Clubhouse. Dynamic Toastmasters No. 467, 5:15 p.m., Thursdays, CRA Clubhouse.

TOASTMISTRESS CLUB—Serra Mesa Club meets first and third Mondays, 7:30 p.m., CRA Clubhouse.

WIVES — Membership tea May 25, 1-2:30 p.m., CRA Clubhouse. Call Edna Erwin, 444-0042, or Lou Nordeck, 273-1140.

Junior Rifleers Smother Rivals In Tournament at Pendleton

Convair Junior Rifleers swept the field in team and individual events at the San Diego Junior Outdoor Regional Championship Rifle Tournament at Camp Pendleton early this month with Team No. 1 taking top spot in the expert class and Team No. 2, second in the marksman class.

Team No. 1 scored 1,427, 60 points more than its nearest competitor, the Valley Gun Club entry. Team members were David French, captain, 368; David Farrelly Jr., 362; John Dawson, 350; Ronald Houts, 341.

Team No. 2 individual scores were Robert Eaton, 350; Ken Moffat, 335; Steve Greer, 285; Jim Tramposh, 225. Total score was 1,195.

John Dawson made a clean sweep of individual honors taking firsts in prone, offhand, sitting, and kneeling, besides first grand aggregate in the master-expert class.

Other first-place trophies went to David Farrelly Jr., sharpshooter-prone, David French, sharpshooter-offhand. Ken Moffat won a plaque for second in marksman-offhand. High ROTC trophy went to French.

Convair men assisting were Jim Lutz, Dick Zeich, Ed Rosemann, formerly of Convair.

In addition to this tournament, John Dawson fired the same weekend in the 30-cal. Regional Tournament, winning a place on the California Junior Big Bore team and a trip to the Nationals at Camp Perry, Ohio. Another Junior, Richard Ellis, fired the three days of the Big Bore Regional and was high in the standings.

Plant Softball Play Under Way

Cosmo Bums will play Flight Control at 12:30 p.m. Saturday in CRA fast pitch softball first half competition at Kearny Mesa field.

Underbrush will take on CSTS at 7:00 p.m., May 23. The Spoilers tackle 963 at 6:45 p.m. and Flight Control the Technics at 8:30 p.m., May 24.

Flight Control plays CSTS at 6:45 p.m. and the Technics clash with 963 at 8:30 p.m., May 31.

In National League slow pitch competition today (May 18), Material and Bullet Biters play at 6:30 p.m., the Bean Counters and Hustlers at 7:45 p.m., and Test Lab and GASP at 9 p.m.

On May 25, the Bullet Biters and GASP play at 6:30, the Bean Counters and Test Lab at 7:45 and the Hustlers and Material at 9.

In American League slow pitch play tomorrow, May 19, Aero Lab and Operations play at 6:30, Plastics and GD/E Bombers at 7:45 and Floxers and Stromberg-Carlson at 9.

On May 26, Aero Lab meets the Floxers at 6:30, Plastics takes on Stromberg-Carlson at 7:45 and Operations plays the GD/E Bombers at 9.

Baseball Drawing Scheduled June 3

Baseball fans have a couple of weeks to get their names in the pool for a chance on free tickets to Padres' home games in June.

Entries deposited by June 1 in Baseball Drawing boxes throughout the plants will be eligible for the CRA drawing for tickets to games with Spokane, June 6, 7, 8, 9; Oklahoma City, June 10, 11, 12; and Portland, June 28, 29, 30. Drawing will be June 3.

Entries must include employe's name, division, plant, department number, shift, plant phone extension. Only one entry is allowed each individual.

Boxes are located at employe services outlets at both Convair plants, Stromberg-Carlson, and Electronics; CRA Clubhouse, Kearny Mesa; engineering mailroom, 3rd floor, Bldg. 51, Lindbergh Field; office of H. C. Medearis, Bldg. 3 mezz, Plant 19.

IRC Fashion Show Tickets on Sale

Tickets are still available for the annual IRC fashion show May 25 at Hilton Inn, off Pacific Hwy.

Price to the show and 6 p.m. dinner is $4.50 per person. Cost of show, dessert and coffee at 7 p.m. is $1.50.

Tickets are on sale at employe services outlets at Convair, S-C, Electronics and CRA Clubhouse.

New Dancing Classes Open

New CRA classes in ballroom dancing remain open for enrollment for beginners and intermediates for another week. Final sign-ups will be taken at next Monday's (May 23) sessions in the CRA Clubhouse auditorium.

Beginners' class meets from 7 to 8:30 p.m.; intermediate class follows at 8:45-10 p.m.

The courses which started this Monday are a part of CRA's continuing instruction program. Over 90 dancers participated in classes which ended May 2.

Both beginning and intermediate courses extend over 12 weeks. Cost of either is $18 per couple. Beginners learn basic ballroom dancing steps and intermediate progress to seven popular American and Latin dances—fox trot, waltz, swing, cha-cha, rhumba, samba, and tango. Those entering the intermediate class should have completed basic instruction.

Both courses are under tutelage of Bob McGlade, professional instructor.

For further information contact Royce Riggan, ext. 1018, Lindbergh Field.

Tickets Available For County Fair

Reduced-price adult admission tickets for the Southern California Exposition and San Diego County Fair are on sale for $1 at employe services offices at Kearny Mesa, Lindbergh Field and Stromberg-Carlson, CRA Clubhouse and the engineering mailroom at Lindbergh Field.

The Fair will run June 24 through July 4 in Del Mar. Children's admission tickets are also being sold for 25c at each location.

Charles Purdy New Rockhounds Prexy

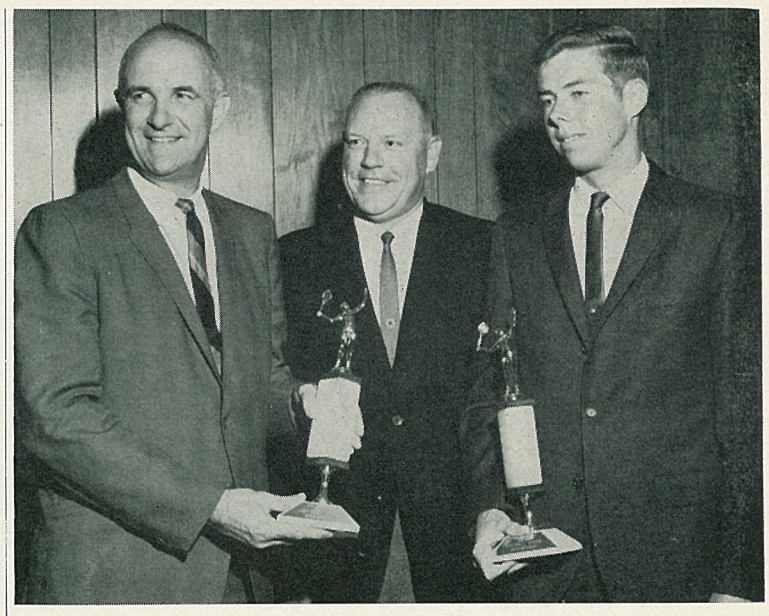
Charles Purdy of Dept. 984-4 has been elected president of Convair Rockhounds. Others taking office will be Gerald Halterman, vice president; Louise Robson, secretary; Robert Shoff, field trip chairman; J. S. Knutson, workshop chairman; and Anne Manor, entertainment chairman.

John Taylor, Glen Perkins, Earl Manor and John Walker are board of control members.

The club will hold its annual Rockhound Show June 11 and 12 in CRA Clubhouse.

GROUP TRIP PLANNED TO ART FESTIVAL

Convair Wives Club is sponsoring a bus trip to the Laguna Art Festival on Aug. 13. Price of $4.75 pays for transportation, art show admission, and entrance to the festival grounds. Call CRA Clubhouse, ext. 1111 KM, as soon as possible to reserve a seat.



DOUBLES WINNERS—Jack L. Bowers, Convair division general manager, left, and Dave Bennett, right, receive trophies for winning advanced doubles competition in spring tennis tournament from Kenneth W. Wulfemeyer of employe services.

Nearly Two Score Get Trophies At Tennis Tourney Ceremony

Thirty-seven trophies were presented to winners and runners-up in the CRA Tennis Club's spring invitational tournament at an awards ceremony April 26 in CRA Clubhouse.

Commissioner Ray Hardy said 120 players, including several guests from General Atomic and the Naval Electronics Laboratory, participated in the tournament.

The sportsmanship trophy, top award in the tournament, was presented to Lt. Dave Babb of NEL. The advanced singles winner is still to be determined in a play-off between Jack Cannau of Dept. 966-4 and Bob Bachman of Dept. 586-2 after Bachman recovers from major surgery.

Following are winners and runners-up, respectively, with department numbers for Convair employes:

Singles, masters invitational — Tad Yamaguchi of General Atomic; Dave Bennett.

Intermediate singles — John Bennett; Dan Hamlin, 596-0.

Novice singles — Tom Gaughen; Bill Conner, 403-1.

Advanced doubles — Jack L. Bowers, 100-0, and Dave Bennett; Fred Fisher and I. Rothmuller of NEL.

Intermediate doubles — George Huff, 141-3, and Don McClarren, 565-2; Ed and John Bennett.

Novice doubles — Dave Babb of NEL and Mike Samuelson; D. Leitner and D. Muerdter of NEL.

Ladies singles — Ruth Bennett (advanced) and Jan Blackburn (intermediate).

Ladies novice singles — Fran Cannau; Diane Story.

Advanced mixed doubles — Anna Chaubody of General Atomic and Dave Bennett; Sheila Kelly and Tad Yamaguchi of General Atomic.

Intermediate mixed doubles — Ruth and Dick Bennett; Diana and Mike Griggs, 596-0.

Novice mixed doubles — Annette and Paul McEwen; Jan Blackburn and Rick Norwood.

Man and wife mixed doubles — Hilda and Dennis Sealey, 578-1; Amy and Frank Jarlett, 581-5.

Winners Announced In Card Competition

Billie and Wayne Evans won North-South honors and Sally and Mits Ishihara, East-West, in CRA Bridge Club's Master Point play May 6. Winners in regular play April 29 were Sophia and David Krause (North-South) and Mitzi and Bob Rustad (East-West).

Charles Thomas, on special assignment at Electric Boat division, was able to join the group May 6 during a weekend home from Groton, Conn. Another member, Ed Lou of Electronics, resumed play after a six-week trip to Hong Kong.

Cyclists Will View Film at Clubhouse

A color movie, "Singing Wheels," will be viewed by CRA Bicycle Club members and their friends at the May 23 meeting, 7:30 p.m., CRA Clubhouse, Kearny Mesa.

Anyone interested in cycling is invited.

For information on club activities call Joe Olander, ext. 2709 KM.

MEMORIAL DAY HOLIDAY MAY 30

General Dynamics people will enjoy a three-day weekend the last of this month when the legal holiday for Memorial Day is observed on Monday, May 30. Except for necessary security and maintenance functions, plants will be closed Saturday, Sunday, and Monday.

Basic Skin Diving Course Scheduled

Delta Divers will offer a free basic skin diving course for average ability swimmers beginning at 7:30 p.m. June 1 in CRA Clubhouse.

The course will be open to all employes and their families but children under 15 must be accompanied by an adult.

Use of fins, masks and snorkel but not scuba apparatus will be covered.

The course will include two lecture sessions, one or two swimming pool training classes and four ocean dives. Call Rod Johnson, KM ext. 3026, or Jim McGinnis, KM ext. 2681.

McDaniel to Head Convair Fish Club

Earl McDaniel heads Convair Fishing Club as president for the new club year. Other officers are C. T. Boyle, vice president; Virginia Lopez, secretary; and Agnes McDaniel, treasurer.

Members are reminded the 1966-67 dues must be paid to be eligible for prizes in monthly fishing contests.

Registration forms are available from Commissioners Bob King and Bob Menzie and club officers.

Next outing will be a Salton Sea trip on June 11.

Wives Will Gather For Clubhouse Tea

Annual membership tea starting the new club year of Convair Wives is slated for next Wednesday afternoon (May 25) in CRA Clubhouse, Kearny Mesa.

All wives of Convair employees are invited to attend during the social period from 1 to 2:30 p.m.

Information on the club and its activities will be given those attending. A variety of handicrafts will be on display.

Mrs. Forest Erwin, club president, home phone 444-0042, and Mrs. Daniel Nordeck, membership chairman, 273-1140, are taking reservations.

Howard Bissell Sweeps Annual Division Bowling Tournament

Howard R. Bissell of Dept. 951-6 took all events and men's singles honors in Convair division's 25th annual bowling tournament at Clairemont Bowl. He rolled 2,020 in all events and 710 in the singles.

The H. R. Bissell's Five — a team composed of Bissell, R. Hertzberg, Phil Adams, Jim Lester and Ed Davis—garnered men's team honors with a 3,113 pin total.

Mixed team winner was the "Phynques" with a total 2,971 score. Team members were Irene Hammershoy, Jean Cappelen, Ron Hammershoy, Hal Bradley and Al Cappelen. Men's doubles winners were Ed Lutes and Jerry Cooper, 1,358; and mixed doubles winners, Irma Rutherford and Bruce Brown, 1,219.

Jackie Groesbeck rolled 652 for women's singles honors. Eunice Ziccardi took the women's all events award with a 1,822.



ON TOUR—Directors of General Dynamics toured Fort Worth division recently. Shown with F-111 in background are, from left: Roger Lewis, GD president, Donald N. McDonnell, Sylvan C. Coleman, Maurice T. Moore, David Packard, B. E. Finucane, Leo D. Welch, John A. Sargent, F. W. Davis, Fort Worth division president, and I. M. Laddon.

Division Contracts and Pricing Reps Meet at Pomona, Discuss Problems

Twenty-two key contracts and pricing executives representing Corporate Headquarters and various divisions conferred May 5 at Pomona division.

The session was convened at the request of Max Golden, Corporate vice president, to coordinate and discuss mutual problems in the field of contracts and pricing.

Pomona was host to the first of this new series of semi-annual meetings planned at divisions to provide first-hand briefings on products and facilities at the widely-scattered General Dynamics locations.

C. F. Horne, Pomona division president, welcomed the group. A tour of Pomona facilities followed short presentations on Redeye, Terrier, Tartar and Standard Missile programs.

Representing Corporate Headquarters were: Golden, G. W. Keach, W. G. Lashbrook, R. A. Wohl, R. R. Brewton and W. R. Cunningham.

The various division representatives were: Convair — A. D. Albright, C. W. Blakey and D. H. Digges; Stromberg-Carlson — A. M. Barnise and J. E. Garner; Electronics — J. Devlin, D. Illeman and A. E. Linkins.

Fort Worth — J. Ferrara; Electric Boat — J. Noga and R. C. O'Sullivan; General Atomic — R. A. Wolf; Canadair — J. Serafin and E. P. Smith; Pomona — H. T. Verano and A. D. Shawkey.



CONFEREES—General Dynamics division contracts and pricing representatives meeting with Corporate officials at Pomona are welcomed by C. F. Horne, Pomona president.

Scooter 'Floats' on Air Bearings As Driver Shoots Space Gun

"Junior," a "three degrees of freedom" frictionless scooter, was completed and put into use early this month by space scientists at Convair division's Kearny Mesa plant for work with space maneuvering units.

The scooter uses air bearings and floats over the same ultra-smooth-surface floor used in Bldg. 28 by its big brother, the division's giant six degrees of freedom simulator.

"Junior" was built entirely from spare parts and scrap materials with the exception of the air bearings for its "feet," which were "borrowed" from a special air bearing floor polisher used on the "flat floor."

Freedom of movement in two directions and in yaw (turning) are provided by the device, which was developed by Earl Christian of manufacturing development (Dept. 491-0) and Robert Brazell of life sciences (Dept. 592-0).

The first space gun used with the scooter after it was completed May 2 was a hand-held maneuvering unit developed by Rocket Research Corp. of Seattle to NASA specifications and used by Astronaut Ed White on his historic Gemini 4 space walk. A companion unit is orbiting in space attached to the Gemini 8 Agena target vehicle.

Brazell said Convair plans to build a similar maneuvering gun and possibly a back-pack maneuvering unit for use with the scooter and for "flying" the big six degrees of freedom simulator after it undergoes modification within the next few weeks.

A back-pack maneuvering unit like that being used in the Gemini 9 mission also has been loaned to Convair by Wright-Patterson AFB for use with the two simulators.

Brazell said "Junior" will be helpful in investigation of such things as restraint and tethering systems, performance of simulated space maintenance tasks, and in maneuvering unit familiarization and training.



RESEARCH SCOOTER — Earl Christian adjusts flow of air to bearing "feet" of "Junior," new scooter being used for work with space maneuvering units, as Robert Brazell prepares to use space gun. Base of Convair's large "six degrees of freedom" simulator is in background.

General Atomic Men Named ASME Fellows

D. W. Ver Planck and George Kidd of General Atomic division of General Dynamics have been named fellows of the American Society of Mechanical Engineers.

Ver Planck is head of the development engineering division, manager of the power reactor division and assistant director of the laboratory at General Atomic and Kidd is head of the general engineering division.

Ocean Data Station Men Will Attend Moscow Conference

Robert Devereux, Convair ocean data station program manager, and three other Convair men assigned to the program, will be in Moscow, Russia, May 30 to June 12 attending the Second Inter-Oceanographic Congress.

Accompanying Devereux will be Stan Uyeda, project engineer on the ocean data-gathering buoy prototype "Bravo"; Harold Driscoll, senior research engineer; and Ralph Kosic, senior flight instrumentation engineer.

Over 1,200 oceanographers and ocean research engineers are expected to attend. First such world-wide oceanographic conference was held at United Nations headquarters, New York City, in 1959.

S-C Multiplex Link Sent to Argentina

Stromberg-Carlson has shipped a multi-channel radio link to the Government of Argentina for use by the Argentina Army.

This link consists of Stromberg-Carlson 711 multiplex equipment. It will provide initially 21 voice channels but later can be expanded to 60. In addition, a hot standby unit was provided with automatic transfer facilities.

Cost Reduction Ideas Exchanged During Seminar-Workshop

Successful cost reduction techniques were discussed and results of the 1965 Cost Reduction/Profit Improvement program were reported late last month at a two-day seminar and workshop in the Washington Office.

Attending were cost reduction coordinators and Value Control Panel members from General Dynamics divisions and Corporate Headquarters.



IDEA EXCHANGE—General Dynamics Cost Reduction Seminar was held late last month in Washington, D.C. Standing, from left: H. P. Williams, Convair, W. Nowak, Electric Boat, W. B. Roberson, Fort Worth, D. L. Murray, Corporate Headquarters, D. C. Verdery, Electronics, J. H. Hill, Electronics, K. Mikelsons, Canadair, R. L. Goodson, Corporate, J. N. Sowers, Corporate, W. J. Ridge, Convair, Max Golden, Corporate vice president, E. Leetsch, Stromberg-Carlson, H. D. Filloon, Pomona, D. J. Lundberg, General Atomic, J. M. Kuda, EB. Seated: J. Y. McClure, Corporate, K. Jackson, Dynalectron Corp., J. Taylor, DOD, J. T. Lane, Corporate, G. E. Fouch, DOD, C. C. Frankenberger, EB, J. Riordan, DOD, Col. A. D. Powers, DOD.

Seminar sessions were led by J. N. Sowers, Corporate director of cost analysis, and J. Y. McClure, Corporate director of reliability, quality control, value control. Sowers reviewed the 1965 total program savings of $89 million and said that a strong and renewed effort in all areas would be needed from all operating units to equal or exceed this in 1966.

McClure reviewed the value control area, emphasizing the need for more interchange of ideas. He also presented a summary of Zero Defects programs to date.

Highlights of the second day were talks by Deputy Assistant Secretary of Defense George E. Fouch, three of his assistants and Max Golden, Corporate vice president. Fouch and his assistants spoke on the cost reduction aspects of value engineering, readiness and maintenance costs, and challenging of quality and test specifications. Golden commented on the importance of the Cost Reduction/Profit Improvement program to General Dynamics, the intense competition which makes cost reduction mandatory, and the periodic requirement to inject new life into the program to accelerate its progress.

While in Washington, conferees attended the DOD-NSIA Advanced Planning Briefing for Industry and heard officials outline current and future DOD plans and weapons requirements and funding available.

In connection with the briefing, General Dynamics, along with other major defense contractors, displayed posters depicting successful cost reduction actions put into effect at various points, illustrating the range and diversity of efforts. Outstanding posters will be selected for showing later in the Pentagon.

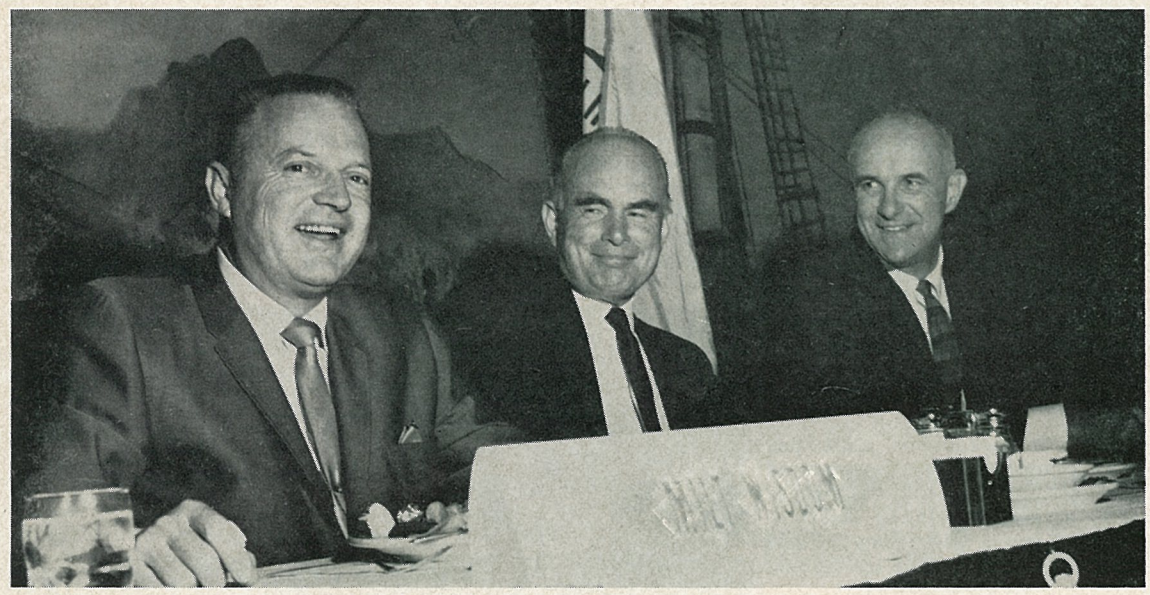
Pomona Specialist To Chair Workshop

H. F. "Tom" Sawyer, Pomona division design specialist, will be chairman of a workshop session on "Automating the Production Assembly Process" during the fourth annual National Electronic Packaging-Production Conference June 21-23 in New York.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 19, No. 11 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, June 1, 1966



GUEST SPEAKER—Algie A. Hendrix, Corporate vice president, center, was main speaker for Convair Management Club last month. At right is Jack L. Bowers, division general manager, and at left M. V. Wisdom, director of industrial relations, who made introduction.

Growth of Individuals Called Key to Success

The growth of Convair division and General Dynamics through the growth of each individual was highlighted by Algie A. Hendrix, Corporate vice president, in a talk at the May 17 meeting of Convair Division Management Club.

Hendrix, who was introduced by M. V. Wisdom, director of industrial relations, spoke on "Management Upgrade—To Meet the Challenges of the Present and the Future."

"We recognize the need and are planning for the accelerated growth of all levels of our management group — our professional, technical and administrative people," Hendrix said. "Management and management-related disciplines are on a fast track, and Management Upgrade is necessary just to stay even with the parade.

"General Dynamics — and Convair I am sure — is not satisfied with just staying even with the parade," Hendrix declared. "The policy of General Dynamics is to do an outstanding job for our customers in meeting our commitments and their requirements in all areas — performance, reliability, schedules and cost — and at the same time, make a proper return to our shareowners."

Hendrix briefly reviewed the Company's history and present position as a barometer for the future. He then presented these reasons for being "bullish" about the future of Convair and General Dynamics:

1. Our Company is headed by a man dedicated to the General Dynamics policy of excellence in all areas.

2. General Dynamics recognizes the importance of the individual and his individual and personal growth.

3. Company is diversified as to customers, products and programs and geography.

4. We have good sound, effective relationships between our supervision and their employes and the employes' union representatives.

5. Number of important and exciting programs should provide a broad base for additional new business.

"The Management Upgrade Program is intended to furnish the atmosphere and assistance which will encourage self-development and help you and General Dynamics move ahead at every opportunity," Hendrix told club members.

Hendrix asked: "First, how do you grow fast enough to catch up with the current demands of your present job? Second, how do you grow up to the future demands of your present job? And third, how do you, as an individual, grow and improve fast enough to qualify for a bigger, tougher and more interesting job?

"One important part of Management Upgrade is more effective coaching at every single level

(Continued on Page 2)

Eight Get Cash For Cost Cutting At Electronics

Emphasis is being placed on the revitalized Employe Suggestion program at Electronics operations in San Diego with healthy cash awards going to eight cost-conscious employes.

First to earn bonuses this year are: E. A. Aschenbrener, Dept. 69-840, $95; E. E. Brundage, Dept. 69-840, $414; Willadean Ellis, Dept. 40-750, $199; C. E. Overhulser, Dept. 40-720, $92; W. O. Peterson, Dept. 40-730, $44; J. N. Webb, Dept. 68-670, $10; W. M. Hutchison, Dept. 40-730, $10; and F. L. Letzring, Dept. 40-750, $61.

Suggesters receive cash awards of 10 per cent of net savings for the first year following installation of approved and installed suggestions. Supervisory and suggestion program personnel receive recognition under the Cost Improvement Proposal program.

The reactivated Electronics-SD Employe Suggestion program is administered by a committee chairmanned by G. W. Leesch, manager of industrial relations. Other committee members are Vince Finley of industrial relations; Don Parrish of cost and price analysis; and Jesse Perry of estimating.

ES forms are available from boxes located throughout the Electronics facility. The forms, when completed, should be placed in envelopes provided in the ES boxes, and dropped in plant mail.



NEW OFFICERS—Convair Management Club's officers for 1966-67 introduced at May meeting are (front row, from left) M. L. Sweeney, president; C. H. Hahn, second vice president; Ray Mendoza, financial secretary; A. R. Mosco, recording secretary; and J. L. Mumford, treasurer. In back row, from left, are board of control members L. R. Gilmour, D. E. Anderson, R. L. Peck, M. C. Tombler, a holdover member, C. E. Reid, T. S. Wied, and W. S. Nader. G. J. Gonlag, first vice president, and L. H. Allen, two-year board member, were not present.

3,500 Affected By Relocations

Consolidation of functions and relocation of personnel resulting from combining of the SLV and Centaur departments into Launch Vehicle Programs at the Kearny Mesa plant have been substantially completed.

The consolidation, which eliminated duplicate facilities and functions, will result in an annual savings of more than $1 million for the Convair division. About 3,500 division employes are being relocated.

J. C. Cannady, LVP manager of finance, scheduling and administration, said the relocation will result in better utilization of professional, technical, managerial and administrative skills and will improve communication between related departments.

W. J. Stanley, manager of plant engineering, said the relocation will cost the division $178,000, with a majority of the cost for purchase and installation of post-and-panel office partitions in Bldgs. 26, 3 and 4.

The reusable partitions, held together by spring clips, can be installed and removed six times faster than heavier wood partitions previously used.

Now located on the first floor of Bldg. 26, in addition to launch vehicle program executives and NASA offices, are staffs of launch vehicle program managers including Deane Davis, Centaur; J. S. Berggren, SLV-3; R. W. Keehn, LV-3C and SLV-3X, and W. F. Miller, D/E/F.

Also on the first floor of Bldg.

(Continued on Page 2)

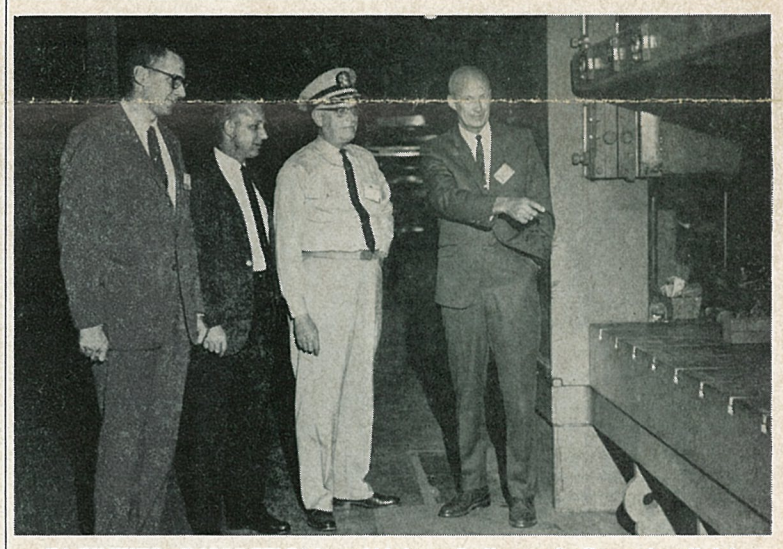
Study Ordered On F-106B

Convair engineers have begun a study on the feasibility of using a F-106B as a flight test bed for evaluation of scale model propulsion systems designed to power the supersonic transport.

The General Dynamics division is conducting the study under an engineering services contract from NASA's Lewis Research Center, Cleveland, Ohio.

The contract received last month calls for the study, design,

(Continued on Page 2)



FACILITIES INSPECTION — Walter Bailey of Convair division, right, discusses operation of 1,000-ton press with Naval Ordnance representatives visiting Kearny Mesa plant prior to award of contract for mine case production. From left, I. C. Henschen, design development materials engineer from Naval Ordnance Laboratory in Silver Springs, Md.; W. H. Smothers, program manager, and Cdr. T. J. Humphrey, both of Naval Ordnance Plant, Louisville, Ky.

Convair Wins Contract To Build Navy Mines

Convair division has received a $2.6 million contract from the U. S. Naval Ordnance Plant in Louisville, Ky., for production of 1,061 mine cases from non-magnetic steel.

Three different welded-construction assemblies will be produced at Air Force Plant 19 and shipped in individual metal containers.

The 1,061 mechanism compartments for the Mark 56 mines will be about 2 feet in diameter and 5½ feet long. A total of 930 regular explosive sections, about 2 feet in diameter and 2 feet long, will be produced. An additional 185 dummy explosive sections for training purposes also will be manufactured.

Arming of the mines with explosives and supplying of internal controls is not covered by the Convair contract.

Walter Bailey Jr. of Convair Dept. 403-2, program manager, said 10 pre-production units will be delivered in November and the first 40 production units in March, 1967. Peak delivery rate will be 120 units per month and final delivery is to be made in December, 1967.

W. D. Valentine of Dept. 756-0 will be in charge of factory operations. A special assembly and stock area will be established for the project at Plant 19. Fabrication assistance from Lindbergh Field and Kearny Mesa plants will be provided as needed.

W. A. Wade of Dept. 143-0 will be responsible for quality assurance and the Defense Contracts Administration Services Plant Representative's Office at Kearny Mesa will monitor the program for the Navy.

The division won the contract in competitive bidding with other manufacturing firms throughout the country.

Naval Ordinance representatives visited Kearny Mesa and Plant 19 recently, prior to signing of the contract, for an inspection of manufacturing plans and facilities.

Log Book Entries

Awards

CONVAIR

Employe Suggestion awards approved for the week ending May 6.

Dept. 001, H. G. Mondy (two awards); Dept. 019, P. A. Piraino; Dept. 141, J. Zoll; Dept. 143, F. A. Baugh, V. M. Frankfather; Dept. 454, M. A. Revetti; Dept. 756, K. W. Doll, T. A. Martinez; Dept. 759, G. D. Lundquist; Dept. 780, A. Favors; Dept. 835, C. J. Bordelon; Dept. 953, E. H. Peppard; Dept. 957, G. A. Rummel Jr.; Dept. 962, J. L. Kronert; Dept. 972, R. L. Robinson, H. L. Shaulis, S. S. Stearns, M. C. Sullens; Dept. 979, C. D. Amos, L. J. Campbell, B. L. Forester, J. A. Knight, E. J. McGee, C. T. Murray, N. M. Robinson; Dept. 985, J. P. Ackerman, J. M. Apodaca; Dept. 987, J. C. Chuckta, W. M. Eddings, T. R. Roberts.

Employe Suggestion awards approved for the week ending May 13.

Dept. 015, W. E. Reader, H. B. Wilson; Dept. 031, D. G. Gordon; Dept. 059, G. Bradley Jr.; Dept. 141, F. H. Ryle; Dept. 143, J. S. Adams, N. J. Belik, J. F. DuBois; Dept. 250, M. E. Nicolet; Dept. 460, E. R. Baldwin; Dept. 733, R. E. Reeves; Dept. 759, N. B. Byrd, G. D. Lundquist (three awards), P. P. Standley; Dept. 780, J. C. Yager; Dept. 832, M. L. Larsen; Dept. 955, I. U. Eggert; Dept. 957, S. R. Kirchmann; Dept. 972, J. L. Miller; Dept. 974, O. P. Ray; Dept. 979, D. A. Butler, L. J. Campbell, J. A. Knight; Dept. 985, V. D. Brose.

In-Plant Training

ORIENTATION

NEW EMPLOYES — Educational services staff. Lindbergh Field, ext. 491. Bldg. 14 auditorium, Tuesday, June 21, 8 a.m. and 4:30 p.m. Kearny Mesa, ext. 1931, Bldg. 17, Room 7, Monday, June 6, 8 a.m.

PROFESSIONAL/TECHNICAL

RELIABLE ELECTRICAL CONNECTIONS — Educational services staff. For further information and quota call ext. 1931, Kearny Mesa.

AFTER-HOURS CLASSES
San Diego Junior College

ELEMENTS OF STRUCTURAL DESIGN — 70 hrs. Starts June 7; Tuesdays and Thursdays, 5-7 p.m., Bldg. 33, Room 12 (Col. EF-7), Kearny Mesa. Prerequisites: Approximately 2 years engineering drafting; knowledge of Convair drawing methods; familiarity with engineering layout practices, design manual usage, standard parts and release system. To register call Martha, ext. 1931, Kearny Mesa.

FALL SEMESTER — What subjects are you interested in? Previous on-site courses have included—math for electronics; technical writing; introduction to digital computers; computer logic and circuitry; quality control and reliability; technical math; blueprint reading; numerical control; tool design; electronics; supervision. To aid in advance planning, please send AVO to Dick Forrest, zone 130-30, indicating courses you are interested in.

PROGRAMMED SELF-STUDY — A limited number of programmed texts in the subject fields of mathematics, statistics, probability, electricity, electronics, slide rule, English review, computer language and others are available in the educational services offices, Room 4, Bldg. 17, Kearny Mesa. These may be checked out for home study. Office hours 8 a.m.-5 p.m., ext. 1931 KM.

Personals

CONVAIR

The family of Edward Charles Hendricks (Dept. 031-0) sincerely thanks all Convair friends for their expressions of sympathy at his death.

Mrs. Fay B. Hendricks
and son Charles.

* * *

My deepest appreciation goes to all my Convair friends for the kindnesses and expressions of sympathy extended to me at the death of my wife.

Robert C. Ihrig
Dept. 985-1, Vandenberg AFB.

* * *

Our sincere appreciation to all of our friends at Convair for their concern and help during the illnesses, both past and present, that our family has incurred. No words can explain how deeply we feel.

Gordon Olcott, Dept. 101-4,
and family.

* * *

The family of Bill Skinner expresses gratitude to his Convair friends and coworkers, especially those in Depts. 149 and 041, for the many flowers, contributions, and kindnesses extended to us in his memory.

Mrs. Jean Skinner and family.

* * *

The family of Joseph P. Spieker Sr. of Dept. 057-0 wishes to express gratitude for expressions of sympathy received at his death.

Bertha M. Spieker;
J. P. Spieker Jr., Dept. 956-0;
and F. B. Spieker, Dept. 834-1.

Births

CONVAIR

ROTH—Son, Kenneth Roland, 7 lbs., 14 oz., born May 20 to Mr. and Mrs. Ronald N. Roth, Dept. 988-8.

THIEL—Son, Peter Andrew, 9 lbs., 2 ozs., born April 25 to Mr. and Mrs. Ronald A. Thiel, Dept. 551-4.

Deaths

CONVAIR

KJELLMANN—T. K., Dept. 963-4. Died May 23. Survivors include his wife, Agnes.

General Dynamics News

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Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

Invention Disclosures

CONVAIR

BARR—L. A., Dept. 581-1. An Air-Conditioned Protective Clothing System.

LEMONS—D. M., Dept. 541-0. Cable Wrap (Archimedes Spiral).

LOVELL—R. B., Dept. 512-2. Magnetic Stabilizer.

VASICK—G. A., Dept. 562-0. Gasket, Flared Tube Fitting.

WILEY—F. R., Dept. 587-1. Precision Liquid Nitrogen Applicator.

Retirements

CONVAIR

BUTLER—Rollo F., Dept. 141. Seniority date Jan. 23, 1942, retired May 6.

DUPLAT—Alejandro, Dept. 19-0. Seniority date Dec. 14, 1950, retired May 16.

HALL—Halbert H., Dept. 322-8. Seniority date Aug. 13, 1956, retired May 5.

HILL—Chester O., Dept. 015. Seniority date Feb. 16, 1942, retired May 20.

MUIR—Mary M., Dept. 001-0. Seniority date Oct. 20, 1947, retired May 2.

THATCHER—Fred H., Dept. 25-9. Seniority date Nov. 1, 1951, retired May 4.

WARNING—Bernard, Dept. 401-9. Seniority date Oct. 28, 1958, retired April 19.

3,500 Are Affected In Relocations at KM To Reduce Costs

(Continued from Page 1)

26 are Cannady's finance, scheduling and administration personnel; contracts personnel under the direction of T. C. Courington; test operations personnel under G. G. Congden; and kickstage and advanced applications personnel under M. R. Barlow.

Occupying the second floor of Bldg. 26 are more than 25 design groups under jurisdiction of L. E. Lightbown, chief design engineer. Two of Lightbown's design groups, signal conditioning components (Dept. 963-9) and telemetry components (Dept. 963-3) remain in Bldg. 33 adjacent to their laboratory facilities.

Now located in the west wing of Bldg. 4 are analysis and development departments under Karl Kachigan; systems engineering departments under H. A. Mellinger; and several configuration management and documentation departments under F. X. Marshall. LVP specifications (Dept. 964-3) is in Bldg. 3.

Also in Bldg. 4 are reliability control Depts. 956-0, 958-0, 958-7 and 958-6 under L. I. Medlock. The remaining reliability control functions are in Bldg. 5.

Engineering departments have been functionally oriented in Bldgs. 3, 4 and 33. Launch vehicle manufacturing operations under R. G. Daly remain unchanged in Bldg. 5.

Electronics operations and advanced autopilot development personnel remain in Bldg. 33. Quality assurance personnel from Bldg. 3 and parts engineering personnel from Bldg. 4 have moved to Bldg. 33.

Some of the 40,000 square feet of space vacated in Bldg. 33 is to be used in the future by special study and special project groups.

Several departments previously quartered in the north wing of Bldg. 4, including reliability departments and the chief safety engineer's office, have been relocated in Bldgs. 1 and 3. Scientific and business computer operations are being consolidated in Bldg. 4.

Cannady and Stanley said the department relocation project followed an intensive four-month study by the division that showed "tremendous advantages and economy" could be achieved.

"Most of the moving of desks, file cabinets and departmental equipment was done after working hours to keep disruption of departmental operations to a minimum," Stanley said.

Telephone numbers for most departments and personnel remain unchanged.

Weight Engineers Elect Four GD Men

Four Convair division engineers were installed as new officers of the San Diego chapter of the Society of Aeronautical Weight Engineers in a May 27 meeting at Harolds Fifth Avenue restaurant.

David Johnston is president; Murray Franke, vice president; Gene Mileur, secretary; and Charles Kohler, Jr., treasurer. All are employed in launch vehicle weights Dept. 966-8 at KM.

LIFE SCIENCE NEXT FOR 'INSIDE CONVAIR'

Two new presentations have been scheduled for this month in the "Inside Convair" series.

Dr. Robert C. Armstrong will discuss life sciences projects June 21 and 23. Earl W. Boteler, program manager, will discuss Navy VSX carrier-based aircraft studies and Chester J. Dunn, director of marine products, will discuss hydrofoil boat plans June 28 and 30.

Presentations, open to all employes, are from 4:45 to 5:45 p.m. Tuesdays in the cafeteria at Kearny Mesa and Thursdays in the Bldg. 14 second floor auditorium at Lindbergh Field. There were no presentations scheduled this week.

Maneuverable re-entry vehicles will be discussed by Richard Nau next week, June 7 and 9, and Dr. William Schart and Dr. Allan Wilson will talk on analog-digital-hybrid computers June 14 and 16.

The "Inside Convair" series has been planned by the Management Club's education committee to give employes detailed information on work being done by the division and plans for the future.

Study Authorized On F-106 Test Bed

(Continued from Page 1)

and use of a F-106B as a flight test bed in the speed range to Mach 2.

Work at Convair will be accomplished on an individual task basis as specified by Lewis Research Center. The current feasibility study is being conducted as the initial task.

During actual flight test evaluation of the propulsion system at transonic and supersonic speeds, emphasis will be placed on the integration of power plant and airframe and its effect on the performance of the propulsion system. According to NASA requirements, primary interest will be directed to nozzle design and performance.

Convair will furnish personnel, services, facilities, and materials necessary to carry out work specified in the overall engineering services contract. Convair service parts at Lindbergh Field operations is responsible for contract administration.

S-C SPRING DANCE SET FOR EL CAJON

A gala affair is in store for all Stromberg-Carlson Data Products people and friends at S-C's first annual spring dance June 27 at the Elk's Lodge, El Cajon.

The S-C recreation committee says that tickets now are on sale by all departmental representatives at the low price of 75 cents for employes and their families, and $1.25 for guests. Most of the cost of the dinner-dance will be paid from the recreation fund, explained Jim Pascarella, committee chairman.

The evening will begin with a social hour at 7 p.m., followed by a smorgasbord at 8, and dancing from 9 p.m. to 1 a.m. Music will be provided by Bill McEvoy's four-piece combo.

Deadline for tickets is June 20.

Modern Management Course Scheduled

A 10-week course on "Issues of Modern Management" will be given by the Convair Management Club education committee from 4:45 to 6:45 p.m. Mondays beginning next week (June 6) in Room A of CRA Clubhouse.

Instructors will be A. H. Rambeau, chief of operations control, and A. J. Gillette Jr., chief of engineering planning and control. There will be no charge.

The committee also has scheduled a one-hour presentation on mutual funds by Frank Sortino of Goodbody and Co. for 4:45 p.m. June 16 in the Bldg. 2 presentation room at Kearny Mesa.

Walter Panke Earns 'Diamond,' Rounds Out 40 Years Service

In the 40 years Walter Panke has been with Convair, he's been off the payroll only one week, due to a cutback in force. That's why he received his diamond-studded service emblem marking four decades on May 6 instead of April 26, the date he actually joined Consolidated Aircraft in Buffalo, N. Y., back in 1926.

And he recalls that he was called back to work the middle of that lay-off week in 1931, but since he'd taken off on a fishing trip to Canada, decided to round out the full week.

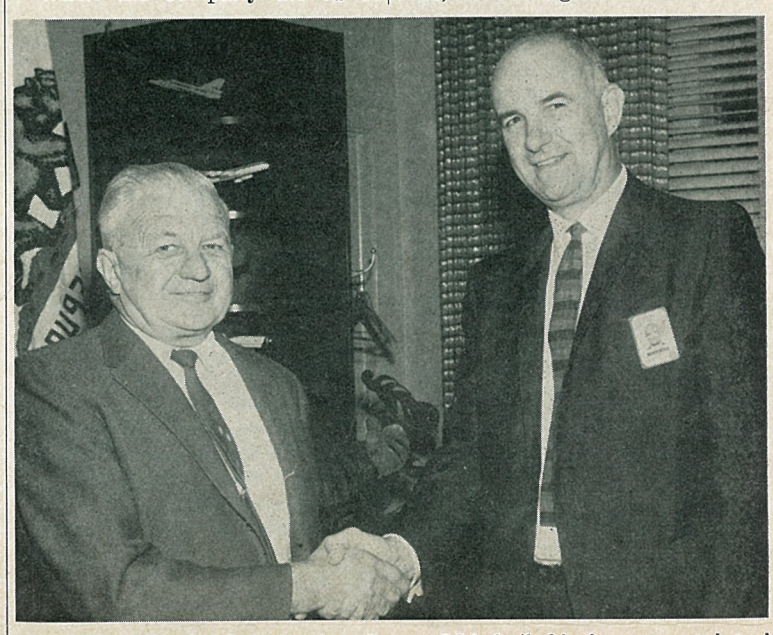
A native of Pembroke in Ontario, Panke went to Buffalo purposely to sign with the young Consolidated Aircraft firm at the urging of a cousin. He started as a helper in final assembly under Bert Bowling in tube bending and rigging in the fuselage area.

Transferred to field operations in 1930, he was put on special assignment to service Fleet Trainers at Midwest airports, incorporating gas tank and landing gear changes.

When the company moved to San Diego the fall of 1935, he and his wife, Angeline, with their 3-yr.-old daughter, Marjory Ann, caravanned across country with the Art Brennan family.

Although he's now in spares sub-assembly in experimental, Panke has been in final assembly supervision most of the last 25 years, rising to general foreman during the R3Y program. He has worked on every Convair plane program from the Y1PT, first turbo super-charged pursuit plane, to the 990 jet transport. He still holds his original A & E mechanic's license No. 8069 issued him in 1932.

And, in the 40 years since he joined the company, only once did he consider leaving for another job. He remembers that in 1939: "I considered going to North Island NAS under civil service. I had even filled out the application forms, when Bowling talked me out of the move. He told me that my future lay with this company where I had a chance to get ahead and advance. And, he was right!"



40 YEARS—Walter Panke, Dept. 031-0 (left), is congratulated by Convair General Manager Jack L. Bowers on 40th anniversary of service with Company. Panke joined Consolidated Aircraft in Buffalo in 1926.

Growth of Individuals Called Key to Success

(Continued from Page 1)

of management," Hendrix said. He suggested that each ask himself these questions:

Do I really want to be a supervisor?

Do I really understand the fundamentals of supervision?

Do I accept my responsibilities as a supervisor in this broad area?

How effective am I as a coach to each of the people who work for me?

Am I giving them and myself a square deal in this coaching area?

How responsive am I to the coaching efforts of my boss?

Is he short-changing me in the coaching area or am I short-changing him and myself and my employes?

"We have passed one rough test and qualified to enter the big race," Hendrix said. "To fail to continue to move forward toward proper growth and profits would be a direct letdown of ourselves — each and every one of us — our customers, our employes and our shareowners."

Sweeney Elected Club President

M. L. Sweeney will head the Convair Management Club as president for the 1966-67 club year as the result of balloting announced at the May 17 meeting.

Sweeney barely edged out R. M. Williams, closest contender, by a slim margin of some 70 votes out of the more than 1,600 cast.

Other officers elected, most in tight races, are: Gary J. Gonlag, first vice president; Harold Hahn, second vice president; Ray Mendoza, financial secretary; Ad Mosco, recording secretary; J. L. Mumford, treasurer.

New three-year board members are Roy Gilmour and R. L. Peck. Two-year board members are L. H. Allen and D. E. Anderson.

One-year board members chosen are W. S. Nader, T. S. Wied, and C. E. Reid.

Installation will take place at the June meeting.

20 Per Cent Discount For Concert Series

Season tickets for the San Diego Symphony's summer concerts go on sale today (June 1) at a 20 per cent discount for General Dynamics people.

A block of choice front balcony seats, reserved through CRA arrangements, will be sold on a first-come basis through this Friday. Cost is $11 for all five performances.

Remaining unsold seats will be thrown open for purchase of single performance tickets next week, June 6 through June 9, at $2.20 for $2.50 ducats.

Three performances will be held in the Convention Hall under direction of John Green, conductor, and two in the Civic Theatre, Arthur Fiedler, conductor.

Discount tickets are available at CRA Clubhouse, Kearny Mesa, Lindbergh Field, and Stromberg-Carlson employe services, and LF engineering mailroom, Bldg. 51, third floor.

Tail Section Mockup For AF's C-5A Mated

A huge mockup of a portion of the tail section for the C-5A, worlds's largest transport, was mated at Convair on May 17.

Convair will build 58 C-5A empennages and two test articles under an approximately $40 million subcontract from Lockheed-Georgia Co., prime contractor for the Air Force.

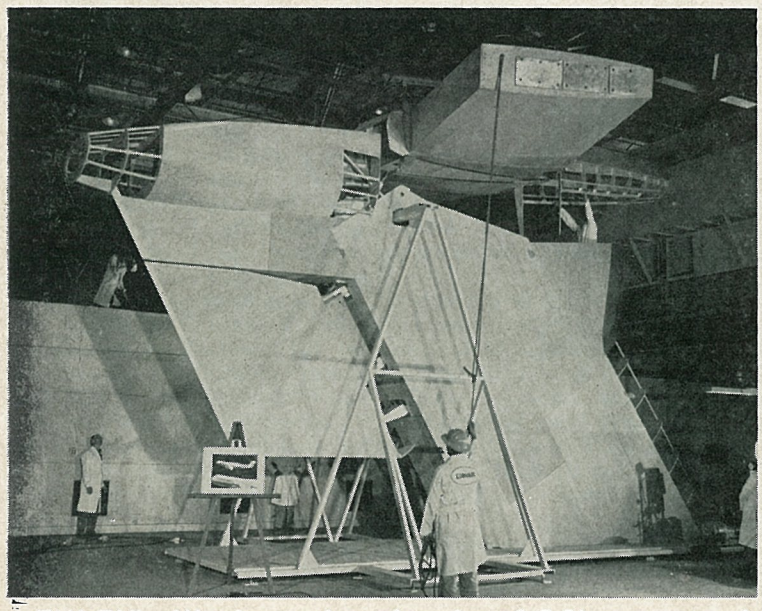
The wooden mockup, appearing more like a full-fledged plane than a mere tail section, stands 16 feet high in the south end of Bldg. 4 at Lindbergh Field plant.

The components, although built to full-scale dimensions, are shortened for lack of space. When the first production empennage is mated in Convair's Bldg. 2 C-5 production area, the lower part of the vertical stabilizer will rest in a 12-ft. deep trench so that the six-story high tail will clear the ceiling.

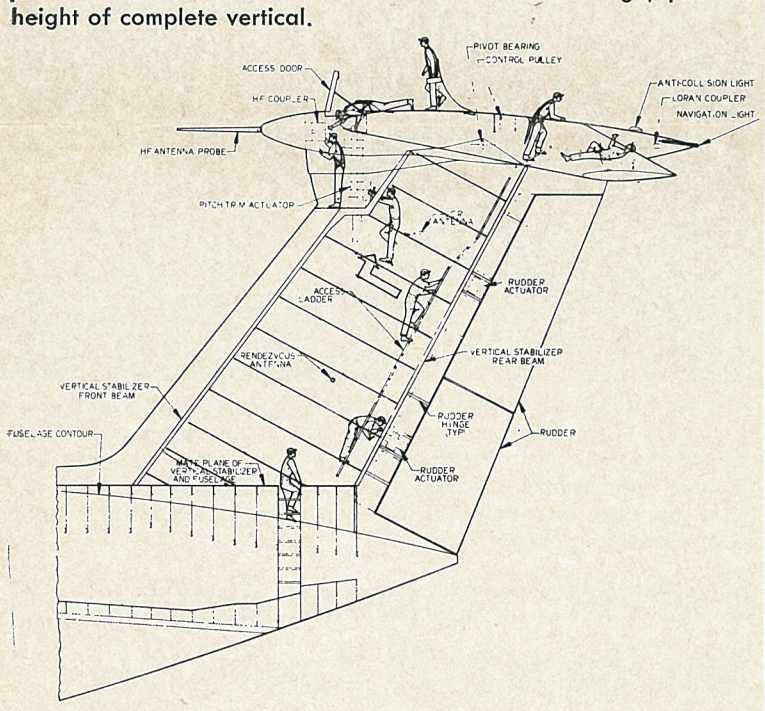
The mockup's vertical stabilizer is just half the length of the 32-ft. finished product. The mockup's horizontal stabilizer represents about a third of the full 68½-ft. span.

The bullet fairing at the intersection of the horizontal and vertical stabilizers is built to full scale width and height. Its length is 80 per cent of the actual 45-ft. length. This connecting fairing is designed to reduce aerodynamic drag and to house high frequency

(Continued on Page 6)



TALL TAIL—Wooden mockup of portion of C-5A empennage is mated in Convair's Bldg. 4 at Lindbergh Field plant on May 17. Hugh stabilizer components were swung by crane high over wall of conference room at south end of building to be maneuvered into position. Vertical stabilizer section stretches 16 ft. high, just half height of complete vertical.



MIDGETS—Sketch represents entire C-5A tail area, showing comparative size of workmen climbing through vertical interior and working on horizontal.

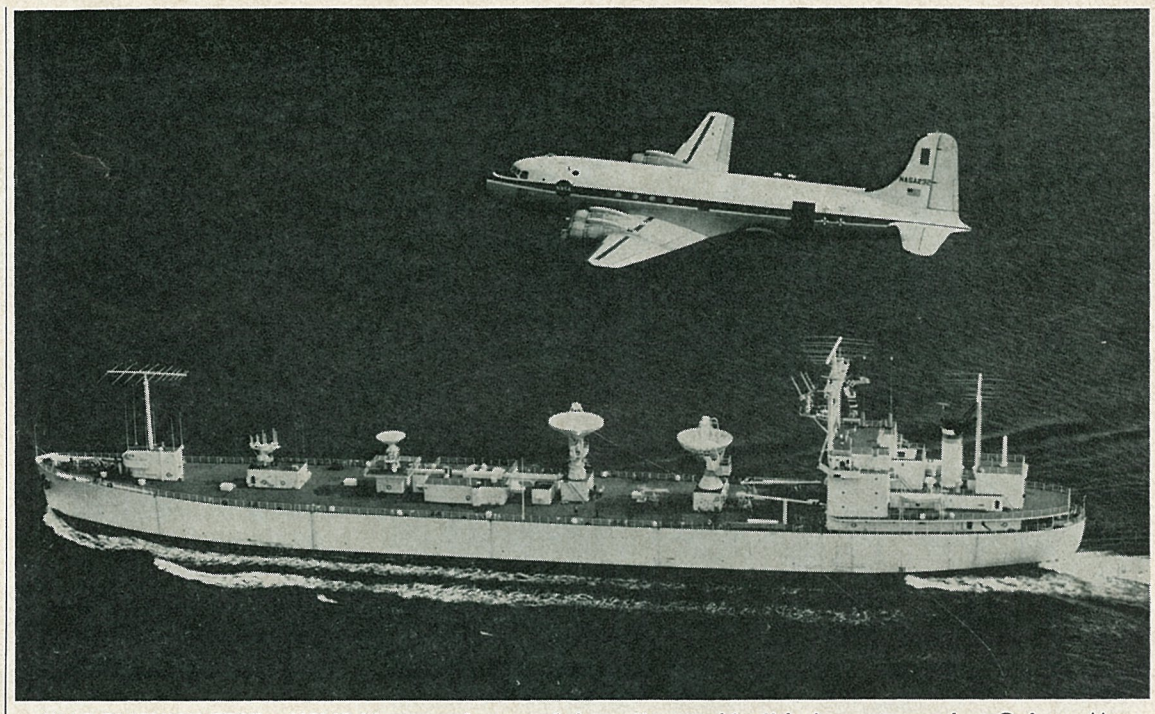
People Mobility

Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

GEORGE J. VILA, from manager of Cleveland field office to Convair as program manager of advanced program development.

NORVAL E. CRABTREE (1941) from Convair division to cost analyst, Fort Worth division; **JOE R. SHUTER** (1943) from Convair to tool operations planning assistant supervisor, Fort Worth; **STEPHEN I. SANDERS** (1956) from Convair to Fort Worth (Edwards); **JOHN G. SHARP JR.** (1957) from Corporate Headquarters (Dayton) to material operations, Fort Worth; **JOHN MORGAN** (1965) from Stromberg-Carlson, Rochester to Electronics, Rochester; **ARTHUR F. PERKINS** (1959) from Stromberg-Carlson, Rochester to Electronics, Rochester; **JOSEPH T. McNALLY** (1956) from Electro Dynamic division to supervisor of PERT analysis and reporting, Electric Boat; **DEAN C. RYLE** (1963) from Convair to process control, Fort Worth; **THOMAS G. EXLEY** (1962) from Pomona to professional employment representative, Electronics, Rochester; **MADSEN L. BARKSDALE** (1946) from Stromberg-Carlson, Rochester to cost estimator, Electronics, San Diego; **RONALD L. BALES** (1950) from Convair to research engineering, Electronics, Rochester; **ROBERT J. BUCCINI** (1964) from Electronics, San Diego to Electronics (Quincy); **LAWRENCE T. GREGG** (1961) from Convair to General Atomic.



"MOONSHIP" TEST—USNS Vanguard, one of three "moonships" being prepared at Quincy, Mass. division for key roles in Apollo program, tested electronic systems at sea last month. Tracking systems were tried out, using NASA aircraft as target.

'Moonship' Checks Tracking Gear, Using NASA Airplane as Target

The "moonship" USNS Vanguard, designed to track and communicate with American Astronauts during Apollo missions to the moon, reported by radio that testing of her electronic systems in their first operation at sea was successfully completed.

In tests that simulated a space mission, the Vanguard tracked a C-54 aircraft that has been equipped with special instrumentation that electronically represents an Apollo spacecraft.

The aircraft, used by NASA to test tracking facilities around the world, made repeated passes over the ship about 30 miles east of Cape Cod.

The simulated space mission, first of a series of such tests scheduled for the Vanguard, was to demonstrate the operational capabilities of the tracking, computing and navigating systems that will play a key role in tracking future Apollo missions.

The systems under test are designed to determine the precise location of the ship (navigation), pinpoint the position and velocity of space vehicles relative to the ship's position (tracking), and to provide aiming data for the radar antennas (computer).

"Performance of the systems was gratifying, much better than we had expected for the initial test under operating conditions," reported Lewis Emmerich who is directing preparation of the Vanguard and two sister ships, USNS Redstone and USNS Mercury, for the moon program.

Five divisions of General Dynamics, with the Electronics division as prime contractor, are involved in preparing the ships.

The Vanguard went to sea Sunday, May 15, from the Quincy division, where all three vessels are being prepared.

Quincy Will Start Apprentice Program

Quincy division at Quincy, Mass., has openings for more than 200 apprentices to learn shipbuilding trades in a new apprenticeship class beginning June 27.

Candidates accepted will receive a starting $2.26 an hour and will be given from 4,000 to 10,000 hours of training, depending on their trade.

The division is working on four nuclear submarines, three Apollo instrumentation ships and has contracts to build nine large surface vessels.

First Lady Agrees To Christen Sub

Mrs. Lyndon B. Johnson will christen the Polaris submarine Will Rogers (SSBN 659) July 7 at Electric Boat's Groton yards.

Mrs. Johnson is the third First Lady to christen a General Dynamics-built nuclear submarine. Mrs. Dwight Eisenhower christened Nautilus in 1954 and Mrs. John F. Kennedy sent the Lafayette down the ways in 1962.

GD Man Appointed To NSIA Committee

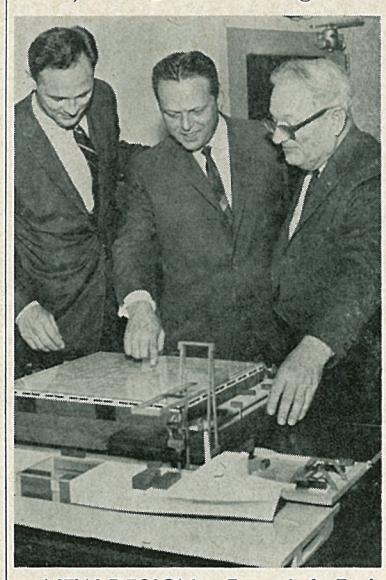
Frank W. Crook, marketing manager for Electronics division's Aerospace Ground Equipment, has been named to the Maintenance Advisory Committee of the National Security Industrial Association.

The NSIA acts in advisory capacity to government agencies.

New Cargo Ship Design Part Of Marine Commerce System

General Dynamics last month announced that it has developed a new type of containership for high-speed, point-to-point transoceanic express shipment.

The announcement followed Federal Maritime Aministration action finding "economic soundness" on the joint application for federal ship mortgage insurance by the Sapphire-Atlantic Express Lines, to aid in financing three ships for use in North Atlantic trade.



NEW DESIGN—From left, Federal Maritime Administrator Nicholas Johnson, Marshall Safir, president of Sapphire-Atlantic Express Lines, and Thomas Dunn, Electric Boat director of advanced design, inspect model of containership system.

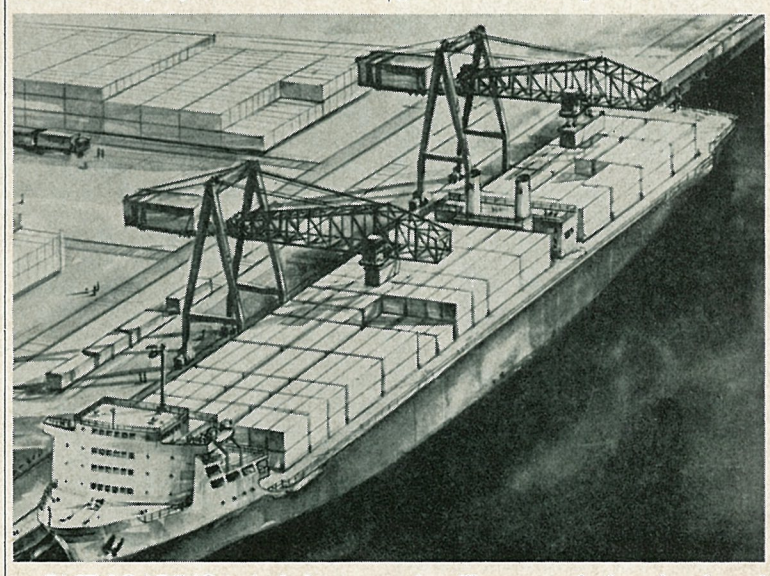
The General Dynamics design, introduced at a press briefing in Washington, D.C., will provide ships that are faster and more economical to operate than existing cargo vessels.

Although the new vessels currently are being offered separately, they have been designed as part of a marine commerce system that will include a new automated terminal and on-ship cargo-hauling techniques and new approaches to ground trans-shipment from key port terminals.

The GD containerships will be 750 feet long with a beam of 92.5 feet. They will have a sustained sea speed of 25 knots at 80 per cent power, with a cruising radius of 10,000 miles. The twin-screw, oil-fueled steam turbines will be capable of delivering 60,000 shaft horsepower. Each ship will displace 30,000 tons when loaded with either of two internationally standardized container sizes: 20 feet by 8 feet by 8 feet, or 40 feet by 8 feet by 8 feet.

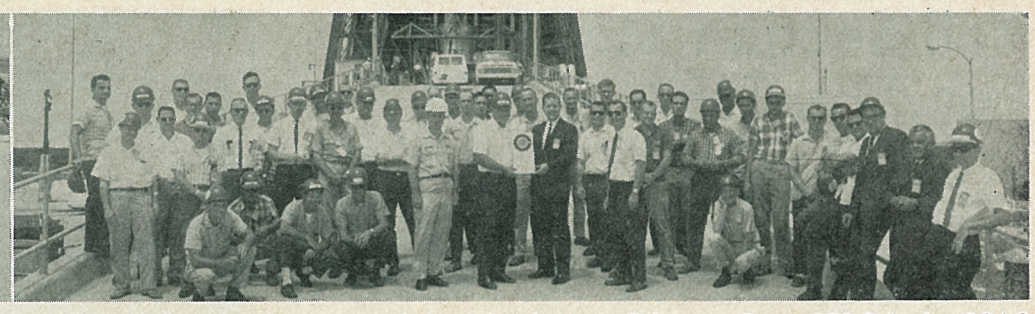
The ships will be equipped with automated container-handling equipment as an alternative to pier-installed equipment for loading and unloading.

As part of its total system approach GD also is offering design and application assistance for the preparation and construction of terminal equipment, warehousing and the integration of ground trans-shipment.



FAST LOADING—Artist's conception illustrates design developed by General Dynamics for new type of containership, equipped with automated cargo handling equipment.

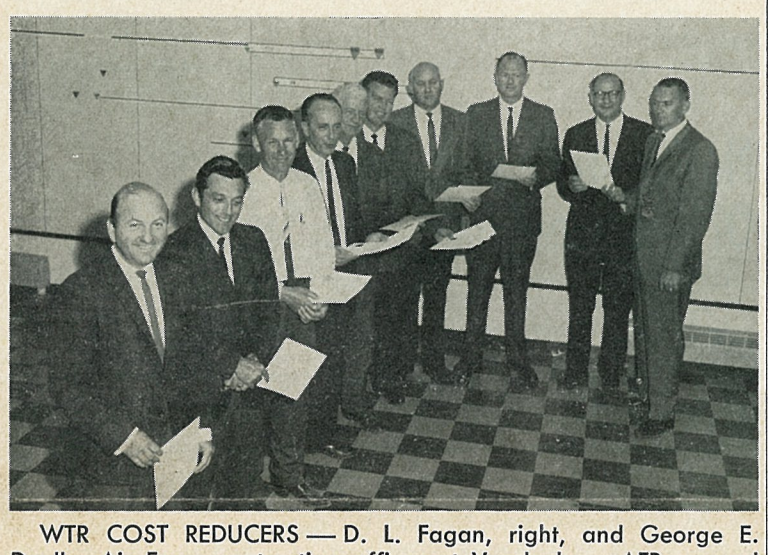




ETR CRAFTSMEN—Convair departments at Eastern Test Range gather for ceremonies in which they were commended for having won "Craftsmen of Month" honors. Maintenance and fabrication Dept. 979-3, in left photo, won title in March and Complex 14 personnel, in right photo, in February. Dept. 979-3 had a 124.9 quality index for its win and Complex 14 a 124.8 quality index. G. L. Hansen, vice president and director of launch vehicle programs, attended Complex 14 ceremony.



SIX-TIME WINNERS—ABRES A personnel at Vandenberg AFB received "Craftsman of the month" honors in April for sixth time and for second consecutive month. C. A. "Curt" Johnston, chief engineer, accepted trophy from D. L. Fagan, operations manager, second from right, in ceremonies at Western Test Range base.



WTR COST REDUCERS — D. L. Fagan, right, and George E. Doelle, Air Force contracting officer at Vandenberg AFB, second from right, congratulated eight Convair employes for cost reduction and value control projects that brought savings for year to $525,285. From left, J. C. Ardoin, W. J. Zathan, W. E. Dismukes, P. F. Stone Jr., C. H. Towner, E. A. Millar, A. H. Hoines and F. B. McQueary.

F-106A Fuel System Trainer Updated Because of New Tank

Only operational F-106A fuel system trainer in use by the Air Force and a lighted-line type trainer with schematic portrayal of the system are being updated at Convair to incorporate changes made necessary by the improved external fuel tank to be installed on AF F-106s.

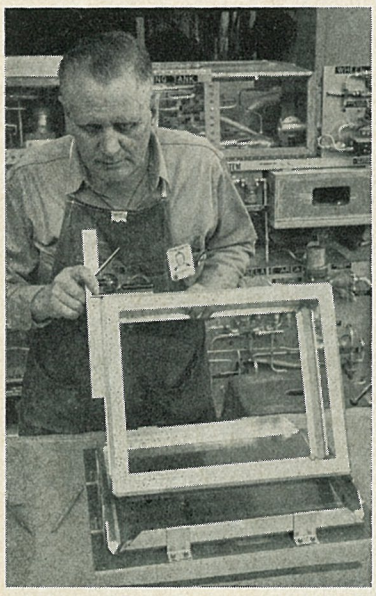
The trainers, originally developed at Convair, have been used for ground maintenance training for F-106-equipped squadrons. The one-of-a-kind operational trainer has been at Selfridge AFB, near Detroit, Mich., the last four years. Lighted-line trainers have been used at Duluth IAP, Minn.; Langley AFB, Va.; Tyndall AFB, Fla.; and McChord AFB, Wash.

The operational trainer includes all the tubing and components needed to duplicate functions of a fuel system on an actual plane. It uses commercial solvent instead of jet fuel and a test cart can be used to check the system. Also, the trainer can be used with an actual cockpit control panel for maintenance training and pilot familiarization.

"The trainer goes beyond the normal functions of the fuel system on a plane," R. M. Zeich, Convair design engineer, said. "Malfunctions of the most unlikely nature can be induced to show students the worst possible situations."

Zeich is directly in charge of the in-plant modification under Ray Boggs of the AGE design group. F-102/106 project office is coordinating.

Modification of the trainers to include the new external fuel tank and associated changes is being accomplished under an Air Force engineering services and support contract from San Antonio Air Materiel Area.



MOD JOB — E. T. Gahlbeck, Convair development mechanic, checks angles of frame of external fuel tank component during modification of Air Force's operational F-106A fuel system trainer, in background.

Correct mail zone number speeds up delivery.

Don't Delay! Medicare Deadline Is June 30

Employe services advises employes and family members reaching 65 this month that they must sign up for Medicare by June 30 for coverage to begin in July.

Persons becoming 65 later this year may sign up from three months prior to through three months after the birthday month. If the birthday is on the first day of the month, the individual is considered, for records purposes, as reaching 65 on the last day of the preceding month.

Employes over 65 are eligible though still working. Individuals also are eligible even though they have never worked. Those missing the first enrollment period must wait until October, 1967, and pay a higher premium for coverage that will not begin until July, 1968.

Application blanks can be obtained from the Social Security office, 3211 Fifth Ave., phone 293-5550.

Industrial Shoot On Gun Calendar

Entries are open now for General Dynamics' marksmen planning to compete in the annual Industrial Gun Shoot, sponsored by IRC the next two weekends.

Rifle and skeet events are scheduled this Sunday, June 5, and trap competition, June 12, all at Gillespie Field Gun Range. Pistol events will be June 12 at SD Police Pistol Range, Home Ave. & Federal Blvd.

Entry fee for pistol and rifle is $2 per entry; skeet and trap, $3.50 an entry.

Sign with Jack Swank, Stromberg-Carlson, phone 298-8331, for skeet and trap; Bob Andrews, rifle, ext. 777, Kearny Mesa; Joe Williamson, pistol, ext. 1413, Lindbergh Field.

Contractors Listen To 'Good Work' Talk

Convair division's "Do Good Work program was described for 500 Los Angeles area government contractor firm representatives May 11 at a "Zero Defects on a Shoe String" meeting sponsored by the Defense Contracts Administration Services district in Van Nuys. W. E. Magnuson, Convair's director of special projects in reliability control, was guest speaker.

Magnuson and Sam Petcher of Dept. 146-3 also outlined "Do Good Work" May 17 at a meeting of students at San Diego State College.

Journalists Visit Kearny Mesa Plant

Two journalists were among recent visitors to Convair division's Kearny Mesa plant.

Richard Seamon, Time magazine senior editor, visited the plant for a ride in the division's six degrees of freedom simulator. Dr. Emanuele Gazzo, director and editor-in-chief of Agence Europe in Brussels, conferred with Karel J. Bossart, Convair technical director, during his visit.

Sign-ups to Begin For Golf Tourney

Sign-ups begin today (June 1) for CRA's next golf tourney scheduled the weekend of June 11-12 at Cottonwood, said Commissioner Ken Wulfemeyer.

Starting times will be assigned until this Friday. Call ext. 1111, Kearny Mesa.

Centaur Test at Kearny Mesa Tops All in Craftsmen Race

Dept. 974, Centaur test operations at Kearny Mesa, topped other Convair departments in the San Diego area for "Craftsmen of the Month" honors in April with a 125.5 quality index.

W. E. Magnuson, chairman of the division's "Do Good Work" program, said Dept. 974 has shown consistent improvement in performance with its quality level on a three-month moving average being reduced from 1.22 defects per 100 manhours in February to .11 in April.

Dept. 836, the first-cut operation at Lindbergh Field, was runner-up in competition in the San Diego area with a 113.5 quality index for the month. A quality index of more than 100 indicates improvement. The April win was the second for Dept. 974 since it entered the competition in April, 1965.

The ABRES A personnel at Vandenberg AFB won Craftsmanship honors for the sixth time with a repeat win over other Western Test Range functions in the April competition. ABRES A recorded a 130 quality index for the month.

Members of the department have been presented Vandenberg AFB's perpetual "Craftsmanship" trophy and each is to receive a personal letter of commendation from Jack L. Bowers, division manager. The WTR department receiving the trophy the most months during the year will retain permanent possession.

The Eastern Test Range winner for April also was a repeat winner—Dept. 979-3, maintenance and fabrication, with a 130 quality index. The win was the third for the department since it entered the competition last May. Each member of the department will receive a silver "Craftsmanship" pin and a letter of commendation.



ZD WINNER—Don Prim, Electronics-SD manager (right) congratulates L. F. Kruse, fabrication foreman, for department's win of Zero Defects banner. At presentation were Lee Dresser (standing next to Prim), administrator of ZD program at Electronics-Rochester, and W. J. Hemmer, Electronics-SD manager of operations. Cigars were passed out to celebrate occasion.

Electronics' Fabrication Dept. Wins Quarterly ZD Honors

Fabrication department of Electronics-San Diego operations walked off with the quarterly Zero Defects award for outstanding performance over the last three months.

Don C. Prim, Electronics-SD manager, in presenting the Zero Defects banner to L. F. Kruse, fabrication foreman, late last month, said:

"Defect-free performance is doubly important in the fabrication of product details since the success of many of our product lines depends on a timely flow of correct usable material to the assembly area.

"In our advanced electronics business, product selling price and delivery schedules do not allow margin for delays and rework costs due to fabrication errors."

Lee Dresser, administrator of the Zero Defects program for Electronics-Rochester, was in San Diego for the presentation and a review of the Electronics-SD operations program. Dresser, who will take an active part in monitoring the ZD program at the San Diego-based plant, said that outstanding individuals and departments will be recognized at regular award presentations.

Electronics-SD's Zero Defects committee headed by Kent Sinclair, manager of reliability and quality control, will continue to administer the local program with Dresser's assistance.

Inventory Control Society Tours KM

Members of the newly-formed San Diego Chapter of the American Production and Inventory Control Society were guests at Convair division's Kearny Mesa plant last month for a dinner meeting and plant tour.

A total of 120 production and inventory control employes from industrial firms in San Diego County attended. Elwood Bryant, Convair vice president-operations, gave the welcome.

Arthur L. Ratz of Dept. 847-2 was elected president of the chapter, the 100th formed under the national APICS. F. J. Parker of Dept. 830-0 and Roy L. Eastberg of Dept. 850-3 were elected to the board of directors.

The visiting group had dinner in the executive dining room at KM and visited receiving inspection and stores areas, the high bay area of the factory, machine shops and the computer area.



BEST BOWLERS—Convair keglers topping annual plant championships include (left photo) winning mixed team "Phynques," Hal Bradley, Irene Hammershoy, Al and Jean Cappelen. Ron Hammershoy was not present. In center photo are, from left, Eunice Ziccardi, women's all-events; Howard Bissell, men's all-events and men's singles; Jackie Groesbeck, women's singles title-holder for second consecutive year. At right is men's winning team—H. R. Bissell's Five—Jim Lester, Bissell, Phil Adams, Ralph Hertzberg. Ed Davis not present. Men's and mixed doubles winners, Ed Lutes and Jerry Cooper, and Irma Rutherford and Bruce Brown not present.

Few Opening Remain For Summer Bowling

There are still openings for bowlers in Convair's summer leagues, which began action last weekend in local bowling alleys.

Co-commissioner Forest Erwin will take late sign-ups at ext. 2884, Kearny Mesa, for any of the six plant leagues rolling Mondays through Thursdays. Lanes are Clairemont Bowl, Parkway Bowl, Lindo Lanes, Victory Lanes and Pacific Recreation.

Road Runners Plan Pine Crest Outing

CRA Road Runners will take advantage of Convair's own mountain resort, Pine Crest, at their June 10-12 outing. Ed Wawrzynski, wagonmaster, invites all trailer fans to join the party.

This month's usual business meeting of the group has been changed to June 23 at Gillespie Field Clubhouse.

ANNUAL GEM SHOW OPEN TO PUBLIC

CRA Rockhounds extend an open invitation to all GD employes and their friends to view displays at the club's third annual gem show Saturday and Sunday, June 11-12, in the CRA Clubhouse.

Members will display mineral and gem specimens, lapidary work from the club's workshops, jewelry and other items from 10 a.m. to 10 p.m. on Saturday and from 10 a.m. to 6 p.m. on Sunday.

Next scheduled Rockhound Club meeting will be next Wednesday, June 8, 7:30 p.m., in the Clubhouse. New members and guests are welcome.

BOLDRICK TO JUDGE STUDENTS' PHOTOS

E. H. Boldrick, chief of still photography for Convair division, and five other professional photographers Saturday will judge photographic work done by San Diego City College students during the past school year.

Youngsters Will Go To Camp Through Con-Trib Assists

Convair Employes' Con-Trib-Club committee in recent meetings allocated $7,935 to 13 community organizations for summer youth campership programs.

Included was $1,500 for the YMCA, $1,200 for the Salvation Army, $1,000 for the San Diego City-County Camp Commission, $1,000 for the Boy Scouts, $600 for the Girl Scouts, $900 for Bayside Settlement House, $350 for Jewish Community Center, $500 for Youth for Christ Lifeline Ranch, $200 for Camp Fire Girls, and $685 for sixth-grade school district camperships.

The sixth-grade camperships were for Chula Vista City School District, $150; Lemon Grove School District, $35; La Mesa-Spring Valley School District, $100; and San Diego City Central Campership Fund, $400.

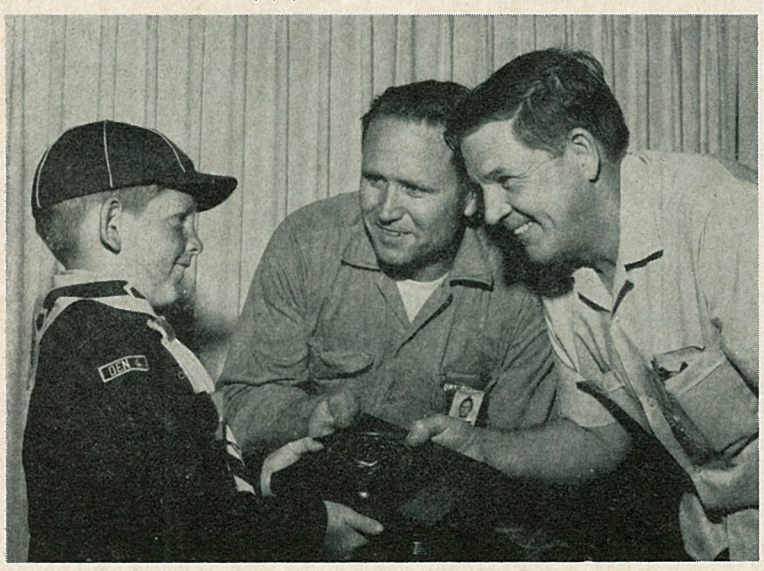
At the April 28 meeting, the committee also approved grants of $1,500 for the Florida chapter of the March of Dimes, $1,500 for the Sunnyside Guild, $1,000 for the San Diego County Epilepsy Society, and $500 for the Marine Corps Reserve-CARE Civic Action Fund for Viet Nam.

A donation of $6,000 went to Edgemoor Geriatric Hospital in Santee. Of this, $5,000 will be used toward cost of seating for a new chapel and $1,000 for purchase of television sets. The hospital is a county medical facility for the indigent aged.

Matthew Burgin, an 8-yr.-old Cub Scout, presented a plaque to the Con-Trib-Club committee in appreciation for $5,000 given to the Boy Scout Council in March.

Three thousand dollars will be used for purchase of a multilith machine and related office equipment. The remaining $2,000 will go into funds for the membership drive.

James Hudson and Richard Fitzgerald accepted the plaque for the committee.



APPRECIATION—Cub Scout Matthew Burgin presents a plaque from San Diego County Council, Boy Scouts of America, to James Hudson, center, and Richard W. Fitzgerald of Convair Employes' Con-Trib-Club committee. Plaque was in appreciation of $5,000 gift from Con-Trib.

CRA Calendar

(For information on CRA activities call CRA Headquarters, Kearny Mesa, ext. 1111. Deadline for copy for the next issue of GD/NEWS is June 8. Call ext. 3322 KM or 1071 LF.)

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BADMINTON—Play Mondays, 7-10 p.m., Federal Bldg., Balboa Park.

BICYCLE CLUB — Group ride around Mission Bay June 4. Meet at De Anza Cove parking lot at 8:30 a.m.

BONAIR FLYERS — Meeting June 7, 7:30 p.m., CRA Clubhouse.

BOWLING — Openings remain for summer leagues now bowling. Call Forest Erwin, ext. 2884 KM.

BRIDGE — Play each Friday, 7:30 p.m., CRA Clubhouse.

CAMERA CLUB — Meeting June 5, 7:30 p.m., Photo Arts Bldg., Balboa Park.

CERAMICS — Instruction Tuesdays and Thursdays, 7-10 p.m., CRA Clubhouse.

CHESS — Play each Wednesday, 7:30 p.m., CRA Clubhouse.

COINEERS — Meeting June 15, 7:30 p.m., Convair cafeteria, Pacific Hwy.

DELTA DIVERS — Scavenger dive June 5, 10 a.m., La Jolla Cove. Meeting June 8, 7:30 p.m., CRA Clubhouse.

DRAMA — Last performances of comedy, "See How They Run," 8:30 p.m., June 3-4, CRA auditorium. Tickets at reduced prices at CRA Clubhouse and employe services outlets.

FENCING — Workouts and instruction Fridays, 7:30-10:30 p.m., YWCA, 10th & C Sts.

FISHING CLUB — Salton Sea trip June 11-12.

GARDEN CLUB — Meeting tonight (June 1), 7:30 p.m., Floral Association Bldg., Balboa Park.

GOLF — Sign-ups for June 11-12 tourney taken until Friday (June 3), ext. 1111, KM.

GUNS — Annual IRC shoot for rifle, skeet, trap, pistol competition June 5 and 12.

HI-FI/MUSIC — Meeting June 14, 7:30 p.m., CRA Clubhouse.

ICE SKATING — GD skate nights Thursdays, 6:15-7:45 p.m., Mission Valley Ice Arena.

MOVIES — Reduced prices at State Theater, Euclid & El Cajon Blvd. Admission: adults, $1; children, 35c.

PISTOL CLUB — IRC shoot June 12, 9:15 a.m., SD Police Range, Federal Blvd. and Home Ave. All regular club shooters will be assigned to teams.

RADIO CLUB — Meeting tomorrow (June 2), 7:30 p.m., CRA Clubhouse.

RIDING CLUB — Meeting June 8, 7:30 p.m., CRA Clubhouse. Fun show tentatively set for June 19, CRA horse ring.

ROCKHOUNDS — Annual rockhound show June 11-12, CRA Clubhouse. Meeting June 8, 7:30 p.m., CRA Clubhouse.

SCULPTURE — Workshop sessions, Mondays, 7:30-10:30 p.m., CRA Clubhouse.

SOFTBALL — Fast pitch and slow pitch plant league play, Kearny Mesa field.

TENNIS — CRA-Management Club invitational tourney weekends of June 11-12, 18-19, 25-26.

TOASTMASTERS — Convair Toastmasters No. 3745 meet each Wednesday, 4:15 p.m.; Dynamic Toastmasters No. 467, 5:15 each Thursday, both in CRA Clubhouse.

TOASTMISTRESS CLUB — Serra Mesa Club meets first and third Mondays, 7:30 p.m., CRA Clubhouse.

TRAILERS — Travelers meet June 7, 7:30 p.m., CRA Clubhouse. Call Virg Marshall, ext. 3541 KM. Road Runners' outing to Pine Crest June 10-12. Meeting changed to June 23, 7:30 p.m., Gillespie Field Clubhouse.

TROPICAL FISH — Meeting and program June 13, 7:30 p.m., CRA Clubhouse.

WOMEN'S GOLF — Tourney June 11, Cottonwood course.

Younger Set Winners In Open Horse Show

Sheila Payne, 17, garnered most points of the day as overall winner in CRA Riding Club's May 15 open horse show.

Sheila, daughter of Scotty Payne, Dept. 130-2, finished with 17½ points; Ken Eiland, son of Jessie Eiland, Dept. 141-0, was runner-up with 15½; followed by Mickey Donahoo, daughter of Clyde Donahoo, Dept. 142-2, with 15.

The three also swept the field in gymkhana events, but in a different order. Ken was first, Sheila, second and Mickey, third.

Star Washburn, daughter of G. M. Washburn, Dept. 197-0, won most points in the morning's equitation events. Her sister, Gayla, tied for second place with Sherri Special, daughter of Sam Special (Dept. 987), club president.

Boyd Spencely was show manager, assisted by Conrad Nash. Timekeepers were Sam Special, Barbara Underwood, Ace Eiland. Ward Keyes acted as judge.

A fun show is tentatively set for Sunday, June 19.

LINKS BATTLE SET FOR CLUB GOLFERS

Convair Management Club golfers face a challenge tossed out by their counterparts at Lockheed-Burbank to measure ability in a links battle June 18 over the Torrey Pines course.

First 40 to sign will be paired in twosomes with Lockheed duos. They will be matched by handicaps and areas of interest as well, said Terry Kell, Convair club golf chairman for the event.

Scores will be based on a maximum four points per team—one for each nine holes, low gross, and low net. Cost will be $5 a person, including greens fees. Tee-off times for the match play contest will be from 9 to 11 a.m. Starting times will be assigned by Kell, ext. 605 LF.

Pete Brown, Lockheed club's golf chairman, promises a return match, no matter who wins. Date has already been set—Oct. 7 at the Ojai course.

Golf Teams Win Honors

Trophies for top twosomes in the "best ball of partners" match May 14 held by GD Women's Golf Club went to Jean Mishell and Freda Magargal, Flight A, and Clara Granat and Flo Kell, Flight B.

Winners of gift certificates for second and third places in Flight A were Mary Ransom and Iris Oster, runners-up; Vi Hirst and Mabel Dunn, third. Mary Ransom also shot low gross for a free week of golf at Mission Bay course.

Flight B runners-up were Betty Jackson and D'Ann Stenson. In third spot were Nell Bartlett and Betty Liddell. D'Ann Stenson won the low gross award and Isabel Torbett, a free golf lesson.

Ballots electing officers for the new term must be in by June 1, reminded Ora Carpenter, nominating committee chairman.

Officers will be announced June 3 at a social affair at the home of Jean Hawthorne, 4266 Gila Ave., Clairemont.

Next links play will be a "tournament of champions" match June 11 at Cottonwood course. A CRA perpetual trophy will go to low gross scorer.

Spanish Class Begins June 23

GD travelers planning to join the annual tour to Mexico this summer will be briefed on helpful tourist phrases and customs of the neighboring country in a CRA-sponsored Spanish course, beginning June 23.

The capsule course, geared especially for the first-time traveler, will be held Thursday evenings, 7-9 p.m., for eight weeks in the Convair executive dining room, Pacific Hwy.

Convair's Jim Hardison, instructor, will teach basics of the language and common phrases to assist in asking directions, ordering meals, shopping, and exchanging money.

The course is open to all GD people and their families, free of charge, whether or not they plan to join the Aug. 13-28 trip. Registration will be made at the first class session.

Hardison is taking reservations now for the summer tour to Mexico City, Acapulco, and other cities. Transportation by air-conditioned Pullman car, hotel accommodations, most meals, and sightseeing is $385 a person. Deposit of $50 is due July 15. The balance must be paid by Aug. 1.

Call Hardison at his home phone, 276-5805, for reservations and full details.

CYCLISTS PLAN BAY JOURNEY

CRA Bicycle Club has scheduled a three hour ride Saturday, June 4, around Mission Bay. The group will leave at 8:30 a.m. from the De Anza Cove parking lot, adjacent to the golf course, and have a mid-point stop for breakfast at Uncle Susie's pancake house. Trip leader is C. J. Banks.



PATENT MEETING—From left, Charles Fisher, S-C Data Products manager of engineering; Dr. Julius Tabin, patent attorney; C. W. Eltzroth Jr., Stromberg-Carlson legal counsel; C. V. Shannon, Data Products manager; and James W. DeSimone, General Dynamics patent counsel from Corporate Headquarters, view poster displaying S-C patent holders over the years at recent patent policy conference in San Diego.

S-C Legal Counsel Describes Company's Patent Philosophy

Over 80 Stromberg-Carlson Data Products engineering and key operations personnel heard C. W. Eltzroth Jr., Stromberg-Carlson legal counsel from Rochester, explain company philosophy on patent filing and acquisition in a special meeting held May 12 in San Diego.

Eltzroth, responsible for the patent department within Stromberg-Carlson, explained that every means available will be brought to bear for protection of employes' patent rights. Dause L. Bibby, president of Stromberg-Carlson, in a communication read at the meeting, stressed the fact that S-C administration is "anxious that the patent situation be fortified" for Stromberg-Carlson inventors.

Also present was Dr. Julius Tabin, patent attorney, who will process invention disclosures and applications for patents from Data Products. Tabin is a member of the firm, Anderson, Luedeka, Fitch, Even, and Tabin of Chicago and San Francisco.

Charles Fisher, Data Products manager of engineering, who coordinated the conference, said that other policy discussions will be scheduled for Data Products engineering department. Future meetings will deal with such subjects as long range planning and "management upgrade."

C-5A TAIL SECTION MOCKUP IS MATED

(Continued from page 3)

and Loran antennas.

A power actuator in the mockup runs the horizontal stabilizer through its complete range of movement. Elevator and rudder can be manually moved through their ranges — 25 degrees up and 15 degrees down for the elevator, and 35 degrees left and right for the rudder.

The vertical stabilizer contains the designed rib structure and access ladder which allows workmen to climb through the interior of the huge empennage to the top of the horizontal stabilizer.

The mockup will be used for checkout of empennage design, clearances and accessibility before Convair goes into actual production later this year.

The mockup was built in Convair's wood pattern shop (Dept. 401-9) to Lockheed-Georgia specifications.

All empennage engineering design tasks are now on-site at Convair, R. W. Miller, C-5 empennage program manager for Convair, said. First engineering release, a test specimen drawing for plank skin extrusions, has gone to the machine shop. Sixteen specimens, 2-ft. by 60 to 100 inches, will undergo compression tests at Convair's structures laboratory at Harbor Test Site during the next few weeks.

GENERAL VISITS COAST FACILITIES

Brig. Gen. Wesley C. Franklin, deputy commanding general for operations of the Army Electronics Command, visited Electronics-SD and Convair's Kearny Mesa plant May 25 for briefings and plant tours.

REPORT PUBLISHED ON 'MONSTER BUOY'

A comprehensive article on "The Monster Buoy," and how it "got that way" was carried in the April issue of Geo Marine Technology.

Co-authored by Feenan D. Jennings, head of the Physical Oceanography Program of the Office of Naval Research's Ocean Science and Technology Group, and Robert Devereux, Convair ocean data station program manager, the special report covers the development and design of deep sea oceanographic buoys. Convair has been developing buoy prototypes over the last four years under contracts from the Office of Naval Research. The first prototype now is being readied for deep-water testing off Bermuda, while the second is being completed at San Diego for a series of tests off the California coast.

Salvage Yard Open Saturday

Next employes' sales day at the Lindbergh Field salvage yard will be this coming Saturday, June 4. This will be the only sales day scheduled this month. All GD employes are eligible to shop at the salvage yard during open hours, 8 a.m. to noon.

Mgt. Club Will Host Children On Full Day at Disneyland

Ninety children from Sherman, Stockton and Logan Elementary schools, many of whom have never been on a trip before, will be guests of Convair Management Club June 12 for an all-expense-paid day at Disneyland.

Robert C. Emerson, planning committee chairman, said funds remaining after payment of all expenses for the big General Dynamics family party attended by 9,673 persons March 26 at Disneyland will be used to finance the trip.

The seven through 12-year-olds selected by school officials to make the trip will board buses at 7 a.m. at their schools. Club volunteers will be escorts.

Each child will have a 15-ride ticket book and will have lunch at the amusement park with his adult host. After leaving Disneyland at 6 p.m., the group will have a box supper of hot chicken on the return trip.

Emerson said the children have never been to Disneyland before and many have never been outside the area of San Diego.

J. C. Penney's Leases S-C 4400

Stromberg-Carlson Data Products has leased an S-C 4400 Computer Document Recorder to J. C. Penney Co., Inc., to speed storage and retrieval of catalog customer records, Carl V. Shannon, manager of Data Products division at San Diego, announced.

The high-speed electronic microfilm recorder has been installed in Penney's Data Processing Department of the Catalog Division in Milwaukee, Wis., according to Philip R. Girard, a senior project manager in Penney's Technical Services Division.

The S-C 4400 accepts digital codes computed by an IBM 7010, or an IBM 360 Mod 40, translates them into alphanumerics and automatically records the data directly on microfilm at speeds up to 15,000 lines per minute.

Film produced by the S-C 4400 will be stripped onto approximately 80 master microfiche which will serve as a directory of names, addresses, and other records for the several million customers served by the Catalog Division. The directory previously consisted of 22 computer-printed volumes of paper.

In addition, the S-C 4400 will be used by Penney's to produce file copies of invoices. S-C 4400 microfilm output also will be used for generating microfiche cross reference directories, transaction indexes, and catalog desk directories, saving retrieval time and storage space.

Save Materials—Don't Throw Your Job Away

George Vila Joins Convair

George J. Vila, manager of the General Dynamics Corporate field office at Cleveland, Ohio, is transferring to Convair division as program manager of advanced program development, Jack L. Bowers, Convair general manager, announced.

Vila replaces W. Fenton Miller who has been assigned program manager of Atlas D/E/F, and will report to Grant L. Hansen, vice president and program director of launch vehicle programs.

With the Company since 1940, Vila was in the Washington Office for 11 years before taking charge of the Cleveland Office when it was established three years ago. He had held various engineering posts in the Company before his assignment to Washington in 1952.

Mel R. Barlow will be acting program manager of advanced program development at Convair until Vila completes the phasing-out from the Cleveland Office.

Martin's Air Charter Orders Second Kit

Martin's Air Charter of The Netherlands has ordered a second Convair 640D kit from Convair division.

The repeat order of a kit for conversion of a Convair-Liner 340 to turboprop power with Rolls-Royce Dart engines was received at San Diego the middle of last week.

Shipment of the kit is scheduled for this fall in time to start modification by Nov. 1. Conversion will be done by Aviolanda-Woensdrecht, Holland, which modified the first 340 for the European airline this spring.

Martin's Air Charter's first Convair 640 is now in regular passenger service.



CONFIGURATION CHANGE—Recent "sign-off" ceremonies marked completion of conversion of ABRES A-3 pad at Vandenberg AFB for launch of E and F series Atlas vehicles. From left, A. H. "Arnie" Hoines, Convair site manager; Lt. Col. Bobby E. Houchin, site commander for 6595th Aerospace Test Wing; George W. Cooper, Convair quality control supervisor, and W. B. Seagraves, Air Force quality assurance representative. A-3 pad conversion was completed 10 days ahead of schedule and is second at Vandenberg converted from D series to E and F series use.

Two Convairites Sing With Winning Groups

A Convair woman, Helen Scott of Dept. 123-0, is a member of the 48-voice "Sweet Adeline" chorus of San Diego which won first place for its harmonizing in the regional contest at Los Angeles last month.

Sweet Adeline choruses are the ladies' counterpart of the men's organization, Society for the Preservation and Encouragement of Barber Shop Quartet Singing in America.

Gene Hartzler of Convair Dept. 195-0 also is a member of a leading barber shop group, San Diego Sun Harbor chorus, which will represent the Far Western district of SPEBSQSA in the national contest at Chicago, Ill., in July. The Sun Harbor chorus will be heard in a performance of the San Diego SPEBSQSA vocal groups at the Community Concourse on June 11.

"TEN COMMANDMENTS" RATE OFFERED

Discount tickets to the motion picture, "Ten Commandments," are on sale at usual Convair and Stromberg-Carlson outlets at reduced price of $1.25 for the June 22 performance at Cinema 21. Deadline is June 20. All seats are reserved.



CREATIVE "THINGS"—Robert F. Brown of Dept. 973-1, left, and James S. Luster of Dept. 967-3, both students in "Principles of Managing" course, consider which "thing" should receive their votes. Building them was part of creative thinking exercises.

Series of 'Own-Time' Courses Upgrade Abilities, Knowledge

More than 1,100 Convair division employes during the past 12 months have attended 22 Management Club-sponsored courses designed to broaden knowledge and upgrade abilities and effectiveness in management on-the-job.

More than 100 others have attended single-session presentations also arranged by the Management Club education committee. Several, including the popular "Inside Convair" series currently being conducted, have been open to all employes.

The 10-week "Principles of Managing" course scheduled from 6 to 8 a.m. Thursdays proved so popular that it has been divided into two sections. One section now meets twice weekly.

William Chana, chief of proposal development, is instructing one session Thursday mornings in the executive dining room at Kearny Mesa with those enrolled having no-host breakfast. John Leib, chief design engineer, instructs the other, Tuesday and Thursday mornings in the Bldg. 2 presentation room.

Both groups are having division executives as guest speakers. W. W. Fox has talked to both on quick reaction operations. Others include P. I. Harr on reliability control, John Milling on controller functions and Ross Evans on motivation.

The National Management Association's "Principles of Managing" text being used for the course covers an overview of management; elements and implementation of planning; the process, authority and responsibility of organizing; the nature and execution of motivating; objectives; and the manager's system of controlling, and leadership.

Chana's group, in a "creative thinking" exercise in an early meeting, was assigned to create a "thing" from a given list of materials — 1 eraser, 5 thumb tacks, 5 toothpicks, 2 paper clips, 1 gum wrapper, 1 rubber band, 4 brass washers and 4 cloth patches. Each had to be useful or a model of something useful, reflect reliability and safety, have balance and be generally attractive and have a name or title.

The "things" created ranged from models of a "moon goon" and an "OV-1 satellite" to a "little exec. helper" and an illustration of the "subcontractor's role in the defense industry."

Students and guest judges voted on the "thing" best typifying the objectives.

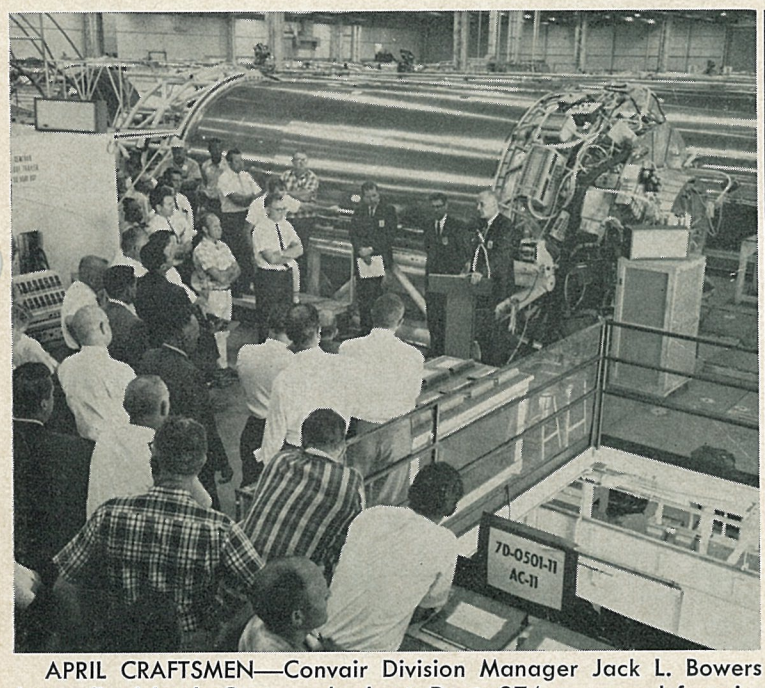
Jerry Schmidt's "swamp mobile" was voted best with Norman Smith's "swimming pool" second.

Other courses still in progress include an eight-week "Marketing Decision Simulation" course being taught from 4:45 to 5:45 p.m. Tuesdays by Robert M. Williams, chief of guidance analysis, and a nine-week nonpartisan "Practical Politics" course being taught from 4:45 to 6:45 p.m. Mondays by Mrs. Adele Fay.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 19, No. 12 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, June 15, 1966



APRIL CRAFTSMEN—Convair Division Manager Jack L. Bowers (at podium) lauds Centaur checkout, Dept. 974, personnel for winning "Craftsmen of Month" honors for April. Thomas Hutchinson, Centaur test conductor, accepts award as Grant L. Hansen, left, vice president - launch vehicle programs, looks on. In background is Centaur vehicle which will have a two-burn operation in Atlas-Centaur 9 Surveyor mass model launch.

Atlas, Centaur Praised For 'Perfect' Launches

"Perfect" launches of the Surveyor, Gemini 9 augmented target docking adapter (ATDA), and OGO-B by Convair division-built vehicles from the Eastern Test Range during a recent eight-day period brought praise to the United States from space scientists around the world and commendation from NASA and Air Force officials for Convair.

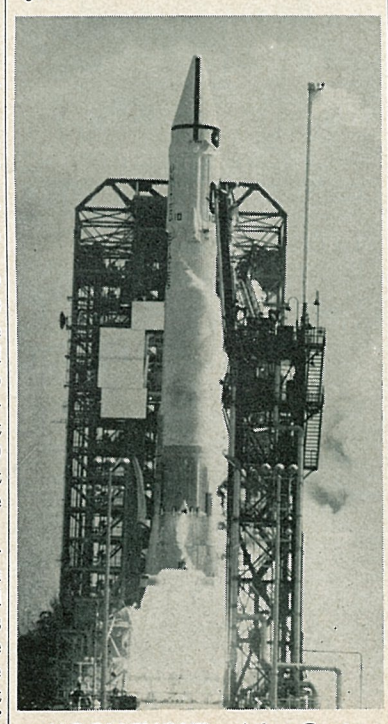
Two additional classified launches from the Western Test Range brought to five the number of highly successful Convair vehicle launches in less than two weeks.

Atlas-Centaur 10 (Atlas 290D and Centaur 1D) on its May 30 flight from Complex 36A at the Cape functioned so perfectly and injected the Surveyor SC-1 into its prescribed lunar intercept trajectory with such accuracy that it would have soft-landed within 250 miles of the original aiming point without the planned mid-course correction!

Most flight events for both Atlas and Centaur occurred within tenths of a second of scheduled time and the Surveyor, after its 63-hour and quarter-million-mile flight, set down gently on the moon within feet of its target and has transmitted thousands of detailed photographs of the lunar surface.

"Congratulations for the outstanding performance of the AC-10 vehicle on the Surveyor 1 mission," Homer E. Newell, NASA's associate administrator of the Office of Space Science and Application, said in a telegram to Jack L. Bowers, Convair division general manager, and Grant L. Hansen, vice president-launch vehicle programs.

"As a result of the unparalled injection accuracy, it was possible to carry out the Surveyor flight with only a modest mid-course correction," Newell said. "Please convey NASA's congratulations to all Centaur personnel for a magnificent job."



MOON FLIGHT—Atlas-Centaur 10 lifts off Complex 36A at Cape Kennedy on its "magnificent" flight that sent Surveyor SC-1 to moon.

Bowers, who was at the Cape for the launch and at Jet Propulsion Laboratory in Pasadena for the Surveyor landing, described the Atlas-Centaur flight and the Surveyor mission as "a great accomplishment and just about the greatest space feat ever." He commended Hughes Aircraft Co. for its "superb job" as prime contractor for Surveyor.

Launch vehicle programs engineers who crowded the Kearny Mesa presentation room from 1 a.m. to monitor the launch were in a joyous mood as the flight progressed with perfection.

As Surveyor landed, the Centaur tank went into orbit with an apogee of 237,790 miles and a perigee of 92.4 miles and is expected to remain in orbit 40 years.

The San Diego City Council adopted a resolution commending Convair and local subcontracting firms for their role in the spectacular flight. General Dynamics published full-page advertisements in several major city newspapers showing "How Surveyor was sent to the moon" and noting that "General Dynamics is proud to be a part of the Surveyor program."

Convair had a 15-man Tiger Team at the Cape to check the AC-10 vehicles before launch with G. W. Lucas as project engineer. Daniel Sarakon was launch con-

(Continued on Page 2)

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Launch Vehicles Score Perfect Performances

"The five highly successful launches during 12 days—Atlas/Centaur/Surveyor, Gemini target/ATDA, OGO-B and two classified launches from the Western Test Range—have been extremely gratifying to all of us," Grant L. Hansen, Convair division vice president-launch vehicle programs, said last week.

"With NASA's Centaur it has been a long, difficult road, but the purpose of a research and development (R&D) program is to prepare for the operational programs," he said. "AC-10 was the first operational Centaur launch and it demonstrated that the Centaur R&D program was correctly conceived and properly carried out. NASA's Surveyor 1 mission has been an outstanding success."

Hansen said the Gemini and OGO-B missions and the classified missions have again demonstrated that the Atlas is a proven, cost-effective booster for the national space programs.

"I am very proud of the efforts of each person who contributed to the success of these launches," he said. "There is no doubt that if we continue to perform as we have just demonstrated, we will enjoy continuing success in our launch vehicle programs."

AF Contract Awarded On OVI Space Vehicles

Convair division has received a $3,168,250 Air Force contract for manufacture, payload integration and launch support of four OV1 space vehicles.

The dual OV1s will be numbered 11 through 14 and will be launched next year from Vandenberg AFB. The twin satellite-carrying vehicles numbered 11 and 12 will be lifted into space by a refurbished Atlas D booster and OV1 13 and 14 by an Atlas E or F series vehicle.

E. R. Gauthier, OV1 assistant program manager, said dual OV1s 13 and 14 will have a conical heat shield shroud for increased mission capability instead of the coffin-type housing previously used. New rocket motors with increased propulsion capability also are being provided by United Technology Corp.

Gauthier said the four OV1s covered by the new contract will be fired into polar orbits ranging from 250-mile circular orbits to eliptical orbits with 6,000 to 8,000-mile apogee.

Convair won the contract in competitive bidding with other aerospace firms. The OV1 vehicles carry scientific payloads for the Air Force's Office of Aerospace Research. Lt. Col. Clyde A. Northcott Jr., is OV1 program manager for OAR.

Twin satellites 7 and 8 in the OV1 series were delivered last week for launch next month from Vandenberg. Later this year, OV1-6 will be launched from the Eastern Test Range with a Titan booster and OV1s 9 and 10 from the Western Test Range with a modified Atlas D booster.

McClure, Harr In New Posts

J. Y. McClure, Corporate director of reliability, quality control and value control for General Dynamics, has been assigned to conduct a special study of post-delivery support of General Dynamics products, Roger Lewis, president of General Dynamics, announced last week.



J. Y. McClure

McClure will be succeeded in his present post by Phil I. Harr, former director



P. I. Harr



L. I. Medlock

(Continued on Page 2)

Seamans to Silverstein: 'Centaur Faith Justified'

(Following is the text of a message from Robert C. Seamans Jr., Deputy Administrator for NASA, Washington, D. C., to Dr. Abe Silverstein, Director of NASA's Lewis Research Center, Cleveland, Ohio.)

"The perfection of the Centaur AC-10 operation is an especial achievement. Previous launches have demonstrated the basic technical and operational competence of the Centaur vehicle. Now, the precision of the entire AC-10 operation from vehicle delivery to spacecraft injection has demonstrated the ability of the program to support stringent operational missions without delay. This total performance justifies the faith which was registered approximately three and one-half years ago in both the Centaur concept and the competency of the Lewis Research Center. The Centaur project has made a major contribution to the space program. Less than two months ago they demonstrated the soundness of the Centaur two-burn concept and now have faultlessly fulfilled their first operational mission requirement.

"The achievement of the Centaur organization, both Government and contractor, is particularly striking when the technical difficulty and complexity of the Centaur development is properly understood. At times, some of these difficulties must have appeared to be nearly insurmountable. However, the outstanding technical competence of the people and the dedication which they have given to the Centaur project seems to have reduced all of these difficulties to manageable size. These people (Centaur) have shown they are truly professional engineers and managers.

"I am proud to be associated with the Centaur program and look forward to a successful and active future for the newest operational member of the nation's family of launch vehicles.

"I want you to express my appreciation and gratitude for the performance of the Centaur project organization. I trust that our pride in their performance will be partial recompense for the personal and family sacrifices which must always accompany professional competence."

AUSTRALIAN PAYS CONVAIR VISIT

Peter F. Pemberton, an Australian Weapons Research Establishment engineer, was guest at Convair division's Kearny Mesa plant last week for discussions of liquid hydrogen cryogenics, transfer systems and test facilities. Deane Davis, Centaur manager, was host.

ICBM Proposal Team Seeking New Business

An advanced ICBM proposal team has been established by Convair division for Company-funded studies expected to culminate in contract definition phase proposals for new ICBM systems next year.

C. S. Ames, vice president of military space programs, heads the team as program director and reports directly to Jack L. Bowers, division general manager.

W. W. Withee has been named deputy program director for tests, deployment and program control; L. E. Munson, manager of systems engineering; and P. G. O'Leary, project engineer.

Ames said that Convair will seek a role as integration, assembly, checkout, and deployment contractor for the expected new generation ICBM system. A number of contractors are expected to build hardware for the system with their efforts being "tied together" by the integrating contractor.

An initial nucleus of about 30 engineers are assigned to the team, which will function as part of Ames' military space programs, Dept. 115-0.

Other key personnel and their

(Continued on Page 2)

CRA Park to Adopt Summer Schedule

With the closing of school, CRA Missile Park at Kearny Mesa goes on a new schedule for the summer months, starting next Wednesday, June 22.

Railroad Commissioner Ed Stevens announced that the miniature railroad and merry-go-round will be operated and the concession stand will be open from 11 a.m. to 3 p.m. Wednesdays, Thursdays, and Fridays.

The attractions will run from noon until closing time on Saturdays and Sundays.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between June 1 and June 15.

Thirty-year: Dept. 031-0, G. W. Christian; Dept. 780-0, T. G. Eckles; Dept. 816-3, W. G. Kilgore Jr.

Twenty-five-year: Dept. 015-0, W. J. Durflinger; Dept. 031-0, S. B. Ames; Dept. 041-0, M. M Lopez, J. L. White; Dept. 195-0, L. H. Boggess; Dept. 250-5, J. S. Fisher; Dept. 300-3, W. J. Sherman; Dept. 551-2, E. T. Guy; Dept. 756-0, C. Mulligan; Dept. 833-3, L. C. Cole; Dept 959-0, R. J. Hendrickson, Dept. 964-0, O. C. Priest; Dept. 985-1, S. C. Nelson.

Twenty-year: Dept. 059-3, W. H. Greene; Dept. 250-5, D. H. Newton; Dept. 420-1, D. J. Campbell; Dept. 780-2, G. L. Jones; Dept. 818-2, R. A. Wood; Dept. 961-4, H. E. Buehner; Dept. 972-0, M. J. Gontesky.

Fifteen-year: Dept. 015-0, F. J. Thomson; Dept. 125-0, T. R. McDaniel, B. K. Miles; Dept. 141-3, D. G. Rice; Dept. 149-6, J. Sima, M. C. Woodard; Dept. 250-2, C. C. Beadle; Dept. 401-5, A. A. Taylor; Dept. 401-6, L. M. Lindsey; Dept. 403-2, H. J. Edie; Dept. 451-0, H. M. Black; Dept. 507-3, D. P. Cumming; Dept. 508-0, H. G. Liggett; Dept. 533-1, R. L. Hayward; Dept. 574-3, W. R. Morris; Dept. 578-3, J. C. Preston; Dept. 591-0, R. D. Horwitz; Dept. 733-0, E. J. Steen; Dept. 756-0, N. A. Loftin; Dept. 817-1, H. L. Bain; Dept. 818-2, H. Anderson; Dept. 835-2, G. L. Burst Jr.; Dept. 950-4, N. I. Wylie; Dept. 951-7, L. C. Bennett Jr.; Dept. 959-0, W. J. Vlymen Jr.; Dept. 962-6, H. W. Qualls; Dept. 963-6, G. D. Boyce; Dept. 964-4, C. C. Addesso, D. F. Ognibene; Dept. 964-5, R. J. Hollister; Dept. 974-4, F. J. Westfall; Dept. 985-1, F. S. Hodges; Dept. 987-0, C. S. Bates.

Ten-year: Dept. 031-0, R. P. Montijo; Dept. 123-0, E. Benyard; Dept. 126-0, A. E. Banks; Dept. 130-1, R. E. Cheney, A. A. Lewis, B. A. Polen, G. M. Radabaugh, H. D. Sewell; Dept. 130-4, P. Soper; Dept. 131-5, R. W. Imhof; Dept. 141-3, J. A. Mendoza, G. L Williamson; Dept. 142-1, J. Geraci, L. L. Posey; Dept. 143-3, D. G. Longbottom; Dept. 145-1, J. N. Sharmahd; Dept. 146-3, L. Dassoff; Dept. 170-1, C. K. Twohey; Dept. 170-9, H. P. Wauschek; Dept. 190-0, E. Fox; Dept. 199-0, E. C. Krug; Dept. 250-1, P Aguayo, E. B. Chenault; Dept. 250-5, J. B. Jordan; Dept. 300-2, I. D. Hofer; Dept. 300-3, A. J. McKinzie, W. E. Striplin; Dept. 401-4, R. A. O'Connor; Dept. 423-0, M. E. Laffoon; Dept. 452-0, R. L. Ashbaugh; Dept. 454-0, M. C. Dahl, R. E. Schneider, A. C. Taranto; Dept. 460-0, L. J. Unzicker.

Dept. 507-0, E. V. Marikle Jr.; Dept. 511-1, A. A. Rose; Dept. 512-2, D T. Chu; Dept. 521-6, M. J. Shelton; Dept. 524-0, M. B. Bailey; Dept. 527-0, H. P. Kelly; Dept. 543-2, J. W. Frost; Dept. 545-0, J. McLean; Dept. 572-3, R. E Hanson; Dept. 574-1, J. Durcan, L. A. Gade Jr., J. P. McCurdy, W. H. Pfender Jr.; Dept. 578-4, R. C. Williams; Dept. 579-2, F. J. Szafranski; Dept. 581-3, M. J. Redlinger Jr.; Dept. 595-0, W. S. Pomeroy Jr.; Dept. 731-0, R. E. Boyd; Dept. 733-0, N. P. Montgomery; Dept. 744-0, H. J. LeClair; Dept. 780-1, W. E Marchant, E. Medina; Dept. 780-2, J. C. Harrold, D. L. Kell; Dept. 780-3, R. E. Gonthier.

Dept. 816-3, R. W. Herbst; Dept. 819-0, L. L. Stoman; Dept. 835-1, V. E. Klundt, D. R. Wall; Dept. 847-2, S. E. Leverett; Dept. 848-0, M. E. Kruger; Dept. 950-4, A. J. Von Der Wische; Dept. 950-6, B. J. Wierzbicki; Dept. 953-0, J. L. Mumford; Dept. 953-1, P. R. Moran, H. J. Sowards; Dept. 954-1, G. F. Lang; Dept. 956-0, J. W. Taylor; Dept. 963-6, J. H. Kirst; Dept. 964-2, D. B. Carson, Dept. 966-4, D. Zentner; Dept. 966-7, M. J. Hurley Jr.; Dept. 967-3, B. A. Lanterman; Dept. 970-0, R. G. Daly; Dept. 970-1, R. M. Hopkins, R. N. Ryan.

Dept. 972-0, M. T. Armstrong; Dept. 973-1, T. A. Szejn; Dept. 978-1, D. W. Kuhlman; Dept. 979-1, K. S. Taylor; Dept. 985-1, C. W. Cole, V. G. Schroeder; Dept 985-3, R. E. Dailey; Dept. 988-4, R. C. Gibson; Dept. 988-8, W. G. Parker.

STROMBERG-CARLSON

Ten-year: Dept. 8412, R. H. Hopster; Dept. 8621, S. M. Reeves; Dept. 8990, W. C. Dossey.

Personals

CONVAIR

The family of Mil B. Stewart Jr. wish to thank all of his Convair friends for their kindness and consideration during his illness and flowers, cards, and expressions of sympathy at his death.

Mrs. M. B. Stewart Jr.
and sons, Mike and Denny.

Lost & Found

CONVAIR

Lost—Diamond pendant on chain. Call Mary Gay, Dept. 113-0, ext. 540 Lindbergh Field.

Births

CONVAIR

BUTSKO—Daughter, Jill Diane, 8 lbs., 2 oz., born May 31 to Mr. and Mrs. Jerome E. Butsko, Dept. 583-1.

ELECTRONICS

ISHIHARA—Son, Mark Mitsus, 5 lbs., 13 oz., born May 9 to Mr. and Mrs. Mits Ishihara.

Deaths

CONVAIR

STEWART—M. B. Jr., Dept. 964-2. Died May 31. Survived by wife, Allene; two sons, Mike and Denny.

General Dynamics News

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Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

Awards

CONVAIR

Employe Suggestion awards approved for the week ending May 20.

Dept. 001, C. E. Alexander, W. A. Swanson, J. W. Weisman; Dept. 002, W. J. Day, E. Fountain; Dept. 015, L. W. Tracy, H. B. Wilson; Dept. 031, A. V. Elo; Dept. 124, B. M. Barton; Dept. 149, J Sima; Dept. 454, A. A. Carlson; Dept. 759, N. B. Byrd, G. D. Lundquist; Dept. 802, T. M. Gardiner; Dept. 833, L. L. Bender; Dept. 979, J. F. Dean; Dept. 985, M. C. Brooks; Dept. 989, L. W. Howerton.

Employe Suggestion awards approved for the week ending May 27.

Dept. 015, W. Ross; Dept. 141, E. M. Duke, B. W. Pesta, G. J. Williams; Dept. 142, L. K. Hibbs; Dept. 146-4, J. W. Cox; Dept. 454, H. F. Davis; Dept. 521-6, D. G. Adams; Dept. 756-9, J. E. Anderson; Dept. 780, P. C. Pond; Dept. 834, T. B. Rogers; Dept. 953-1, N. M. Austin; Dept. 957, J. Fodor Jr. (two awards); Dept. 969, E. R. Dershem; Dept. 979-2, J. E. Coolidge; Dept. 984, R. J. Prendergast; Dept. 987, J. C. Chuckta, F O. Fernandez, L. O. Marine, F. J. Mathis (two awards), T. R. Roberts, S. Robles Jr. (two awards), J. N. Rogers, H. R. Short; Dept. 989, J. B. Jessop, J. D. Willingham.

Papers Presented

CONVAIR

CUMMING — D. P., Dept. 507-0. "Starting Problems with a Synchronous Motor-Driven Compressor," and "Development of a Launch and Recovery System for Free-Flight Models." Supersonic Tunnel Association, Langley Research Center, May 2.

JENSEN — H. L., Dept. 963-7. "The Instrumentation of Bending Moments on Large Space Boosters," IEEE National Telemetering Conference, Boston, Mass., May 10-12.

JIRAUCH — Dorthea H., Dept. 595-0. "Artificial Intelligence in Automated Design," third annual SHARE Automatic Design Workshop, New Orleans, La., May 18.

KLAWA — R. F., Dept. 591-0. "A Mission Scheduling System for Manned Space Flight," Operations Research Society of America, Los Angeles, Calif., May 18-20.

SMITH — C. R., Dept. 587-1. "Fatigue Life Improvement of Aluminum Alloys with High Density Chromium Surface Finish," Society for Experimental Stress Analysis, Detroit, Mich., May 4-6.

THOMMEN — H. U., Dept. 596-0. "Numerical Calculation of Separated Flow Fields," Advisory Group for Aeronautical Research and Development, Brussels, May.

* * *

Papers presented at 7th National Chemical and Petroleum Instrumentation Symposium of Instrument Society of America, San Francisco, May 23-25: R. G. ROSCOE, Dept. 142-2, "Instrument Training Program - General Dynamics Convair," and M. J. SEXEY, Dept. 142-2, "Decentralized Maintenance."

* * *

Papers presented at 25th National Conference of Society of Aeronautical Weight Engineers, San Diego, May 2-5: W. E. CADDELL and R. L. BENSON, Dept. 588-1, 'Payload and Loadability Improvements with the Convair/Dart Conversion." C. A. GARROCQ, Dept. 587-3, "Estimation of Wing Box Weights Required to Preclude Aeroelastic Phenomena." C. K. PERKINS, "Capacitance Sensing for Weight Engineering." JACK M. YOUNGS, Dept. 588-3, "The Graphical Solution of Oblate Spheroid Shell Intersections.

In-Plant Training

ORIENTATION

NEW EMPLOYES—Educational services staff. Lindbergh Field, ext. 491. Bldg. 14 auditorium, Tuesday, June 21, 8 a.m. and 4:30 p.m. Kearny Mesa, ext. 1931, Bldg. 17, Room 7, Monday, July 11, 8 a.m.

PROFESSIONAL/TECHNICAL

PRODUCT IMPROVEMENT TRAINING—Dept. 733-15, June 13-16 and 20-23, Kearny Mesa, Bldg. 5, Col. K-8, Conference Room.

VALUE ENGINEERING WORKSHOP —Everett Lindem, ext. 1931 KM. June 27-July 11. Room 11, Bldg. 33, Kearny Mesa. Enrollment closed.

NEW DISCREPANCY REPORTING AND CORRECTIVE ACTION — Hal Rubin, ext. 1931 KM. June 13-20. 1½ hours. Lindbergh Field classes, Room 8, Bldg. 14. Plant 19 classes, Conference Room, Bldg. 3. Kearny Mesa classes, Room 7, Bldg. 17.

RELIABLE ELECTRICAL CONNECTIONS — Educational services staff. For further information and quota call ext. 1931, Kearny Mesa.

AFTER-HOURS CLASSES
San Diego Junior College

BLUEPRINT READING—Hal Rubin, ext. 1931 KM. 40 hrs. (8 weeks.) Mondays and Wednesdays, 4-6:30 p.m. Lindbergh Field Bldg. 14, Room 8. Registration Monday, June 27. $1 fee required by City College. For further information call Wayne Turner, ext. 491, LF; Hal Rubin, ext. 1931, KM.

FALL SEMESTER—What subjects are you interested in? Previous on-site courses have included math for electronics, technical writing, introduction to digital computers, computer logic and circuitry, quality control and reliability, technical math, blueprint reading, numerical control, tool design, electronics, supervision. To aid in advance planning, please send AVO to Dick Forrest, zone 130-30, indicating courses you are interested in.

PROGRAMMED SELF-STUDY — A limited number of programmed texts in the subject fields of mathematics, statistics, probability, electricity, electronics, slide rule, English review, computer language and others are available in the educational services offices, Room 4, Bldg. 17, Kearny Mesa. These may be checked out for home study. Office hours 8 a.m.-5 p.m., ext. 1931 KM.

June, July Salvage Schedule Changed

Salvage yard schedule for June and July has been changed to avoid conflict with the Fourth of July weekend.

A second employes' sales day has been set this month, on Saturday, June 25, at the Lindbergh Field yard, adjacent to Gate 5. Next sales day will be July 23.

Atlas, Centaur Praised For 'Perfect' Launches

(Continued from Page 1)

ductor and Roger Lynch, chief of Centaur launch operations. W. J. Hammond was site support supervisor at Kearny Mesa with R. W. Eberhardt as site principal engineer.

The Atlas-Centaur 7 vehicles, next for launch in the Surveyor series, will be delivered to ETR this month.

Atlas SLV-3 No. 5304, which lifted Gemini 9's ATDA into a near-perfect circular orbit June 1 from Complex 14, had the longest powered flight ever achieved by an Atlas (more than 6½ minutes), the highest orbit (161-162 nautical miles) and will have the longest orbital period (16 days).

E. R. McFadden, project engineer, said the launch was "by far the most ambitious" with Atlas as a direct ascent booster. The Atlas ordinarily has five minutes powered flight. Atlas vehicles that achieved orbits as Project Mercury boosters were in orbit less than two days.

Maj. Gen. Ben I. Funk, commander of the Air Force Space Systems Division, told newsmen at the Cape the Atlas that put the ATDA in orbit turned in the best performance he had ever observed in a booster being used to launch a space vehicle.

Gen. Funk said the Atlas gave the ATDA an orbital velocity within one-half of one foot per second of perfection.

"We're proud of the contractor teams and the military and space agency personnel who made this possible," he said. "We've never seen such booster accuracy before."

"We at Convair are extremely happy with performance of the ATDA booster," R. W. Keehn, Atlas LV-3C manager, said. "All our booster parameters were right on the money.

Jack Miller was launch conductor and Thomas J. O'Malley was Atlas launch operations chief.

Atlas SLV-3 No. 5305, the booster to be mated to an Agena for NASA's Gemini 10 mission, was accepted by the Air Force at Kearny Mesa on June 7, shipped to the Cape the following day and was to be erected today (June 15) on the launch pad.

The orbiting geophysical observatory (OGO-B) launched June 6 by Atlas SLV-3 No. 5601 from Complex 12 with an Agena-B second stage also was placed into desired orbit with all systems operating satisfactorily.

Andrew Kalitinsky, assistant program director-launch vehicle engineering, said the Atlas lifted off within 1/10 of a second from opening of a 55-minute launch window and its injection velocity was within a fraction of a foot per second of that desired.

W. J. Hammond, site support manager at Kearny Mesa, said both the countdown and boost phase were "perfect" and that the OGO-B was placed "within a mile" of the desired 66,000 nautical mile apogee and 150 nautical mile perigee.

Orion H. Reed was launch conductor and W. G. Phillipp was Atlas test conductor. James Von der Wische was program manager.

The 54-foot OGO-B carried instrumentation for 21 experiments to measure such matters as solar wind and flares, radiation belt particles, magnetic field disturbances, ionization and variation in atmospheric density.

OGO-E, the next OGO series observatory, is tentatively scheduled for launch in August, 1967.

McClure, Harr In New Posts

(Continued from Page 1)

of reliability control at Convair division. L. I. Medlock will assume Harr's duties at Convair.

McClure and Harr will report to James T. MacDonald, General Dynamics vice president.

McClure's special assignment in field service support follows five years as Corporate director of reliability, quality control and value control. He first joined General Dynamics in 1935 but left three years later to design racing planes. He rejoined the Company in 1940 and became Fort Worth division manager of quality control in 1951.

Harr joined General Dynamics in 1961 as assistant to the vice president of operations at the Convair division. He became division director of reliability control later the same year. Prior to joining General Dynamics, he had been with Fairchild Aircraft division in various management capacities since 1936.

Medlock has been manager of reliability control for the Convair division's Space Launch Vehicle programs. He first joined Convair in 1941 and has served in a wide variety of responsible posts in inspection, quality control and reliability involving aircraft, missiles, space launch vehicles as well as electronics and aerospace equipment. In addition, he served as operations manager at two Air Force bases during activation of Atlas programs.

Medlock Now ASQC Fellow

L. I. Medlock, newly-appointed Convair director of reliability control, has been elected to the status of fellow by the American Society of Quality Control.

The citation, awarded at the annual technical conference of the society in New York City June 1-3, read: "In recognition of his skillful leadership during the past 25 years, and the uncompromising adherence to the basic principles of quality control; including successful application of these fundamental disciplines in the field of industrial management."

Medlock is currently chairman of ASQC Western Regional Conference Council and is past president of the San Diego Section of ASQC.

Among his major accomplishments in the field of quality control include the development of a quality control acceptance plan for operational Atlas ICBM sites. He also received the Commander's Award from USAF Ballistic Missile Division and Certificate of Merit from President Kennedy's missile site labor commission for his work on the Atlas ICBM.

He is author of the chapter, "Reliability and Quality Control Engineering," in the Handbook of Business Administration published by McGraw-Hill Co.

Mgt. Club Members Will Hear Program On Viet Nam Action

Convair Management Club members will hear a first-hand account of the war in Viet Nam at a specially-arranged meeting June 28 at the Marine Corps Recruit Depot.

Lt. Col. Don H. Blanchard, who recently returned from the combat area in Viet Nam, will show slides and pictures of the action there. He will explain how the Viet Nam war differs from conventional warfare in other theaters and describe special training methods used to prepare Marines. A question and answer period will follow his talk.

The evening will open with a 5:30 p.m. dinner for members only in the MCRD mess. Installation of new officers will be held during the program.

Management Club members may enter through Gate 4, off Highway 101, after 4:30 p.m. They will be admitted by identifying themselves with the Convair group and will be directed to parking places by MPs on duty. All attending are urged to be punctual.

Tickets at $1.50 are on sale by Management Club Boosters.

Women Management Seminar Planned

Four from Pomona division will attend a weekend Management Seminar for Women being sponsored by the Women's Management Council June 24-26 at Lake Arrowhead.

Nell Crago and Peggy Sagamang of engineering (Dept. 6) and Jean Kenworthy and Mazie Davis of Redeye program management (Dept. 15) are charter members of the council and will attend the seminar.

TESTING SOCIETY TO HEAR CONNOR

Dale R. Connor, Pomona division project coordinator (Dept. 27), will speak at a June 16 meeting of Society for Nondestructive Testing in Los Angeles.

ICBM Proposal Team Formed

(Continued from Page 1)

responsibilities include A. B. Cox, systems requirements; C. E. Wilson, booster requirements; F. D. Huggin, payload requirements; M. E. Stone, AGE and facility requirements; J. M. MacDonald, test and development requirements; R. F. Mawhinney, advanced MIRV propulsion study; and Brown Thompson III and R. J. Parsons, project engineering.

Ames said the new proposal team will "increase the very effective efforts" already accomplished by a team of engineers that have been working for several months under O'Leary's direction in the advanced design and technology group.

"We are now doing trade-off studies that involve looking at various approaches for implementing the system operational requirements," he said.

The ICBM studies are being conducted as a joint effort between Convair and the General Atomic division. General Atomic is also establishing a team for full time work on the project under the direction of Dr. Victor A. J. van Lint and James Nance.

Ames said the contract definition phase, as the first phase of development of a new ICBM system, will define system characteristics and firm costs and schedules. It will be followed by a developmental phase for actual hardware design and testing.

Engineering Depts. Are Realigned

Organizational changes have recently been announced and a new organizational chart distributed for Convair division's research and engineering departments.

E. R. Peterson, vice president-research and engineering, said realignments have been made to strengthen the division's new business acquisition capabilities.

J. M. Wild now heads a new engineering technologies Dept. 570-0 and C. L. Adcock, advanced systems design Dept. 580-0.

Functions formerly under the direction of W. W. Withee, who has been reassigned to the new advanced ICBM proposal team, have been assumed by other research and engineering departments.

In addition to Wild and Adcock, major research and engineering department heads reporting to Peterson include W. T. Dorrance, special programs, Dept. 506-0; F. J. Dore, advanced programs, Dept. 581-0; B. R. Parkin, systems analysis, Dept. 589-0; W. E. L. Boyce, research and information sciences, Dept. 590-0; W. W. Fox, product design, Dept. 509-0, and Paul D. Ferrara, engineering administration and services, Dept. 520-0.

High Energy for Space: A report from General Dynamics

How can you add calories and not gain weight?

The question, only rueful to waistline worriers, is vital to space flight. Calories are energy that has to be unlocked from fuel. The fuels that now lift relatively large payloads into earth orbit are not really efficient to take them all the way to the moon. Something with more "calories" to the ounce is needed.

The theoretical answer has been known for years—hydrogen.

Hydrogen contains more heat units to the pound than any carbon-derived power source. It burns explosively when mixed with oxygen. Under proper control, it would be ideal.

Enigmas of ultra-cold:

Hydrogen, existing naturally as a gas, is unnoticeable under everyday conditions. To be used as a practical space fuel, it must be carried in the vehicle as a liquid. In that form it is one of the coldest things in existence, 420° below zero Fahrenheit.

In this world of ultra-cold, most materials become as brittle as thin glass. Should the temperature rise only a few degrees, liquid hydrogen "boils" into a rapidly expanding gas that could burst through a sealed container.

Could liquid hydrogen be contained within a vehicle light enough for space flight? Could it be kept cold enough? Be controlled so precisely that its reaction with oxygen would give exactly the amount of thrust needed?

Today, hydrogen has been tamed. When the National Aeronautics and Space Administration's Surveyor lands on the moon, it will have been put on its way by Centaur, the first space vehicle fueled by high-energy liquid hydrogen.

Centaur was originally started by General Dynamics as a research project for the Department of Defense to test the feasibility of hydrogen as a fuel. Now operational for NASA, Centaur is the most powerful upper-stage space vehicle for its size and weight available. In nature the most efficient container in terms of weight to strength is considered the shell of an egg. Centaur, which needs only 1/35th of a pound of tank for each pound of propellant carried, is three times more efficient.

But before Centaur became operational, major problems had to be solved.

Early hurdles...

On the ground liquid hydrogen must be stored in large stainless steel tanks with double walls filled with insulation and evacuated to a high vacuum. Similar permanent insulation would mean a substantial weight penalty for a space vehicle.

With the best available insulation, relatively high external air temperatures on earth and the friction heat generated during booster flight cause some boil-off, creating the danger of constantly increasing gas pressure inside a tank.

Liquid oxygen must be carried in the vehicle to react with the hydrogen. Lox is pretty cold itself at −297° F., but "hot" enough to make hydrogen boil.

Centaur's stainless steel tank, which is also the external skin of the vehicle, is only one-third the thickness of a dime. The extreme cold initially created microscopic cracks, visible only under magnification, in the stainless steel around some welds. Such cracks could cause structural weakness—and leaks, since hydrogen, the smallest of atoms, can seep through openings that will hold back everything else.

...and answers:

For external insulation Centaur is wrapped with 1,200 pounds of inch-thick glass fiber panels filled with plastic foam. Just before the upper stage separates from its booster, the panels, which have served their purpose, are forced away by explosive charges. Now Centaur is free to reach its required speed at a minimum insulation-weight penalty to the mission.

To control boil-off, venting systems bleed off hydrogen gas during propellant loading and until launch at 18 pounds per minute. Excessive pressure is prevented from developing inside the tank, yet the gas is sufficiently diffused that it can be fed into the atmosphere without danger of explosion. During booster flight, venting continues until the vehicle enters the frictionless cold of space, when the bleed drops to a half-pound per minute.

One step in the elimination of microcracks was to thicken the original skin of Centaur a bare .004 inch to its current .014 inch. To reduce them further, all the vehicle's 162,000 spot-welds are X-ray inspected, and any imperfect welds are repaired before assembly continues.

Extra chores:

In addition to its fuel energy, the hydrogen even helps itself work.

The ultra-cold actually solves one insulation problem. Oxygen and hydrogen tanks are separated by less than one-third of an inch, but the liquid hydrogen freezes air between the tanks into a solid, creating a narrow vacuum that minimizes the passage of heat.

The thrust chamber—where the fuel is burned—develops temperatures of some 5,500° F. Such heat could quickly bring the cryogenic propellants to the explosion point.

On its way to be "burned," liquid hydrogen is first pumped through a cooling jacket surrounding the thrust chamber, separating the very hot from the very cold areas.

In absorbing the engine heat the liquid expands to a turbulent gas to be used for the energy reaction. But some is temporarily diverted to drive turbopumps that feed the propellants in required amounts to the engines. Without this technique, propellants would have to be force-fed to the engines under high gas pressure, requiring thicker tank walls and greater weight.

Slimming down more:

Centaur, for its size, is the most efficient single vehicle in operation today. Its fuel is the most efficient currently available for space use.

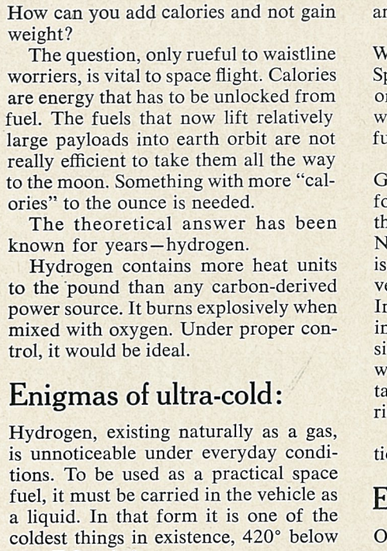
Yet further improvements are being worked on by General Dynamics: metals equally strong and possibly lighter; "super-insulations"; uprated engines, advanced control systems and fuel additives to increase performance.

As Centaur matures, it's going to take on even more calories—and probably lose more weight in the process.

General Dynamics is a company of scientists, engineers and skilled workers whose interests cover every major field of technology, and who produce: aircraft; marine, space and missile systems; tactical support equipment; nuclear, electronic, and communication systems; machinery; building supplies; coal, gases.

GENERAL DYNAMICS

One Rockefeller Plaza, New York, New York 10020



Atlas-Centaur launches a payload.

How Centaur works as a space vehicle

Space flight requires both muscle and speed. Whether the payload is a grapefruit-sized satellite or a manned capsule, it must be pushed to a speed of 25,300 feet per second to reach a 160-mile high orbit around the earth. To go to the moon, it must hit 36,000 f.p.s.

The muscle is supplied by a launch vehicle whose initial push, defined in pounds of thrust, must be sufficiently greater than the total weight of the vehicle, fuel and payload to overcome the pull of gravity.

The heavier the combination, the more thrust is needed to get it started against the pull of gravity and to keep it moving fast enough to reach its destination.

Just adding more propellant to a single stage vehicle would ultimately make the propellant containers so heavy that the vehicle could not reach the necessary velocity.

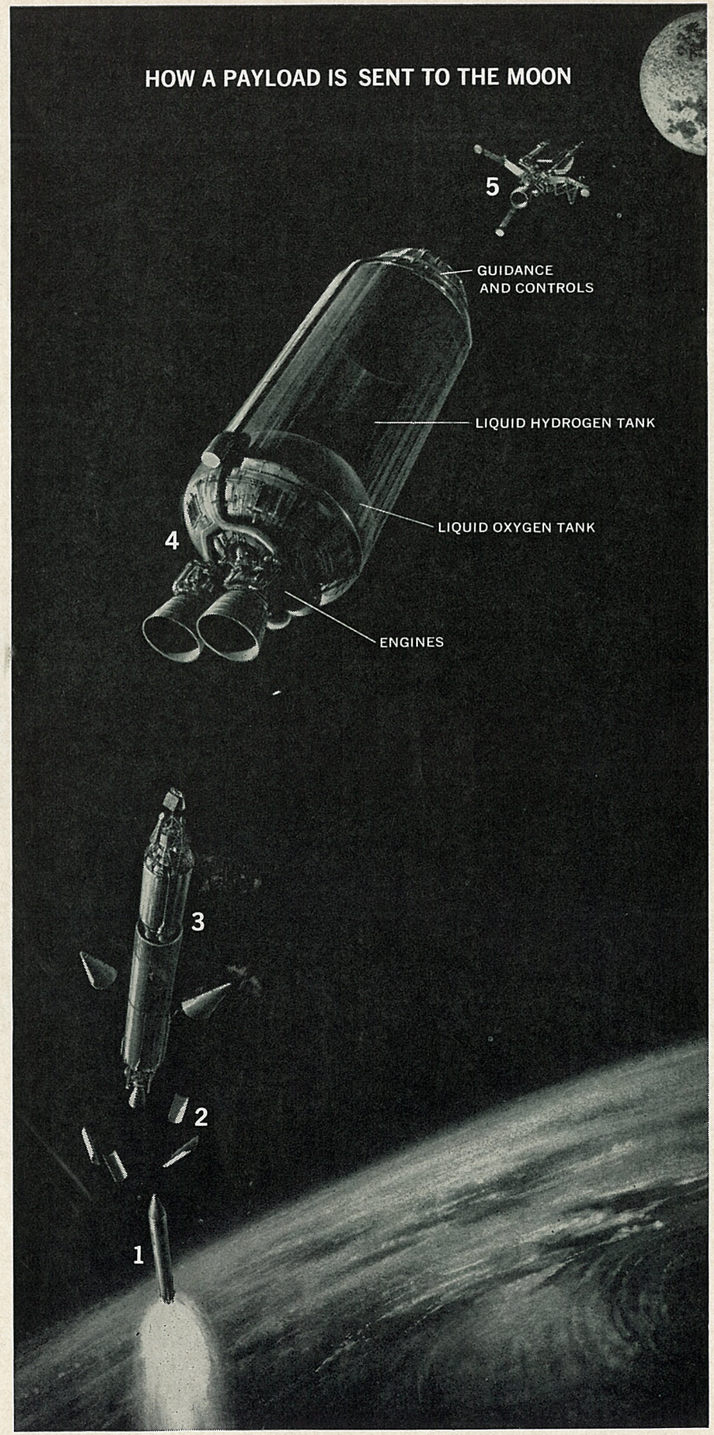
So for speed, a second stage is used.

This tandem combination can be compared to a sports car being pushed by a truck. The truck goes as far and as fast as it can. When both vehicles reach the top speed of the truck, the fully fueled sports car starts, adding its own acceleration to carry its driver farther and faster.

Centaur's "truck" so far has been an Atlas, the same General Dynamics' launch vehicle that boosted the first American astronauts into orbit.

Fully fueled on the ground, Atlas, Centaur and a two-ton payload weigh a total 303,000 pounds. Atlas' 380,000 pounds of thrust, provided by a kerosene-derived fuel, push the combined vehicles to 91 miles and a speed of 12,700 f.p.s. before it drops off and Centaur's hydrogen fueled engines take over.

The high energy of the smaller Centaur now need push only the 36,500 pounds of itself and the payload against less gravitational effect and without the resistance of the atmosphere. After 440 seconds of firing, Centaur is traveling at 36,000 f.p.s., fast enough to send its payload along its orbit to the moon.



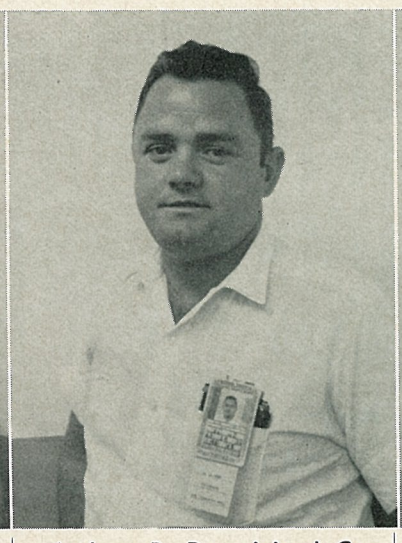
1—Atlas starts Centaur and its payload on their flight. **2**—Shortly before Atlas and Centaur have separated, insulation panels and then nose fairings have been jettisoned. **3**—Atlas separates and Centaur and payload start their phase of journey. **4**—Centaur has completed firing and separated from payload. **5**—Payload continues along its orbit to the moon.

ETR Personalities . . .

Pictured directly below are a few individuals, picked at random from Convair personnel assigned to Eastern Test Range at Cape Kennedy.



Frank G. Sturgill joined Convair during February of 1959 and was assigned to the calibration laboratory. He is recognized as a first class trouble-shooter and holds the classification of calibration technician senior. In addition, he is senior committeeman representing I.A.M., Local Lodge 610. With his wife, Ruby, and children John, Michael and Rebecca, he enjoys trailer living on Merritt Island.



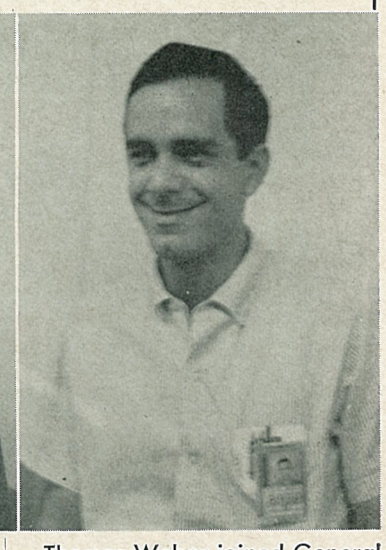
Andrew B. Dyer joined Convair division at ETR in 1956 as a mechanic assigned to early Atlas launches. He is now an assistant foreman in charge of mechanical systems on Complex 14. A devoted family man, Dyer lives in New Smyrna Beach with his wife, Jean, and their children, Brantford, Linda, Karen, Timmy, Susan and Sharon. They enjoy golf, bowling and fishing as well as tropical Florida living.



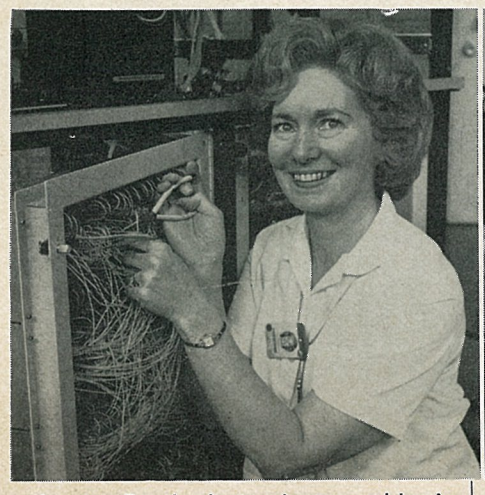
Richard Andre was transferred from San Diego (Model 7 engineering) to ETR in November, 1956. It was close to a homecoming because he grew up in Miami and received his BSME degree from University of Miami. As a design engineer senior, he is currently in the ETR design group working from Complex 11. He lives in Satellite Beach with wife Barbara Ann and children Richard, Philip and Michele.



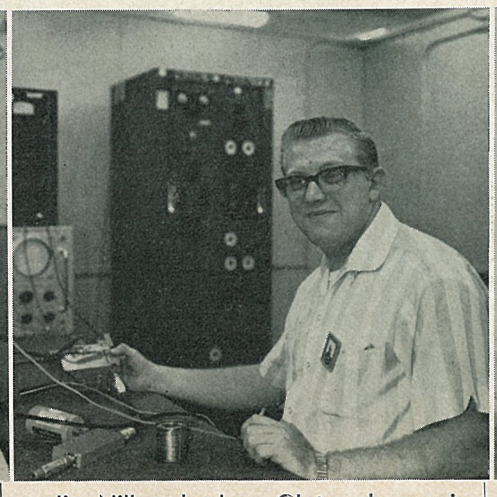
Joe Louis Smith helped open the General Dynamics facility at ETR when he joined the Company in 1956. During his ten years he has served in material, office services, and launch services where he is presently assigned as a launch service mechanic, Complex 14. He is married and lives in Melbourne with his wife, Marie, and their children, Frederick, Kermit and Yolanda. He enjoys fishing, golf, baseball.



Thomas Weber joined General Dynamics at ETR in 1960 as an offset duplicating machine operator. While working full time, he continued his studies at University of Florida, majoring in electrical engineering. As his college work progressed he moved ahead in the Company, and is now assigned to Complex 14 as a flight test engineer. He lives in Melbourne with his wife, Lois, and enjoys chess and fishing.



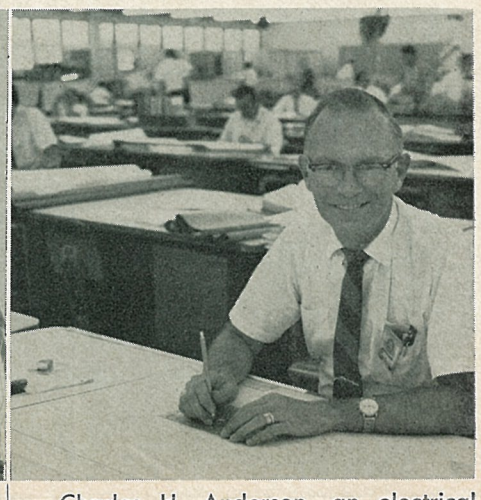
Loretta Boyd, electronics assembler in Stromberg-Carlson Data Products, installs sub-assembly wires and hookups in S-C 4400 Document Recorder in "marriage" of interconnecting sub-assemblies. Loretta has been with the S-C division at San Diego the last 10 years. She was trained in electronics assembly work at General Electric Co., Schenectady, N.Y., where she went to work just before World War II in 1940. Her husband, Sherman, also is employed at Data Products' division in advanced development. They are now deep in plans for the new home they are building on Mt. Helix and Loretta is taking a night course in interior decorating to help her work out her own decor. She also golfs and bowls and takes care of the "family" — two miniature dachshunds.



Jim Nilles checks a Glotrac harmonic generator-diplexer assembly (frequency multiplier) for frequency and response in Electronics-SD vehicle electronics laboratory where he is a research and engineering technician. Lab is engaged in design and development of transponders through prototype stages and test of production units. Nilles, with the former Astronautics electronics section, transferred to Electronics-SD nearly two years ago. He was one of the technichians sent by the company to South Africa in the fall of 1964 to install the Glotrac tracking station near Pretoria. Nilles joined General Dynamics in 1961 after completing electronics training at DeVry Institute in Chicago, Ill. He and his wife, Mary Jean, have three sons, Bryan, 3, Kevin, 2, and Eric, 6 months. They live in the Clairemont area.



Hugo Tilling, a precision development technician for Dept. 756-0 at Convair Kearny Mesa, uses a variety of specially made, odd-shaped hammers in forming one-of-a-kind metal parts. Tilling has been with Convair 22 years. He has had most of the hammers more than 30 years and originally used them as a silversmith in Copenhagen, Denmark. Tilling and his wife returned to Europe on a trip four years ago and had a reunion in Copenhagen with five men with whom he had served as an apprentice boy from 1915 to 1920 in the C. C. Hermann silversmith shop. After coming to the United States in 1927, Tilling worked 12 years as a silversmith in New York—10 years with Tiffany Co. and two years with Hickock and Matthews. The Tillings live in El Cajon and enjoy gardening and photography.



Charles H. Anderson, an electrical and mechanical design draftsman in Dept. 988-5 at Convair, Kearny Mesa, is shown at work on design of ground support electrical equipment for Centaur. A native of Pennsylvania, he came to the San Diego area when he was five and attended Grossmont High School, San Diego Junior College and San Diego State College. He has been a Convair employe more than nine years and spent more than two years at Vandenberg AFB, Schilling AFB, Kan., and Plattsburg AFB, N.Y., as a design engineer during installation and checkout of Atlas F series missile sites. Anderson lives with his wife, Barbara, and four children in Clairemont. He is a 32nd degree Mason with Clairemont Mesa Lodge 799, a member of Scottish Rite Bodies, Al Bahr Shrine.

Convair's Apprenticeship Program Will Be Highlighted at County Fair

Convair's apprenticeship program will be pointed up in a display at the Southern California Exposition and San Diego County Fair at Del Mar, June 24-July 4.

The division's four-year program will be pictorially presented in a Convair booth in the new Apprenticeship Bldg. The ten apprentices now in training at Convair will be pictured working at their trades. Four are electronic apprentices, four, machinists, one, molded plastic tool builder, and one, a tool and die maker.

The combined Convair apprenticeship program is now administered by a new Joint Apprenticeship Committee headed by J. A. Croft, chief of educational services. Other members are H. A. Mohr, Dept. 001-0; M. A. Stutz, Dept. 452-0; R. C. Neaves, Dept. 780-2; Fred R. DeGreef, Dept. 401-5; L. K. Thornbrugh, Dept. 031-0; M. E. Long, Dept. 715-0; and J. J. Aquelino, Dept. 731-0. Advisers are J. E. Royle of Convair labor relations; Ken Fawcett, coordinator of technical education for SD Junior Colleges; and John Young, State Division of Apprenticeship Standards.

Wayne Turner of educational services continues to coordinate the program at Lindbergh Field plant, while Harry Miller, also of educational services, is coordinator at Kearny Mesa.

LAUNCH PHOTOS SELL FOR 50¢

Color lithograph photos of launches of the Atlas-Centaur and Atlas SLV, and Convair 600 in flight are now on sale at Convair employe services and CRA Clubhouse. They are 50 cents each for 16x20-in. or 8x10-in. prints.

Jack Hirtzel Ends His Apprenticeship

Convair was represented by only one newly-turned journeyman at the annual Apprenticeship Completion Ceremony held May 27 in the Hilton Inn.

Jack Hirtzel Jr., who completed Convair's four-year apprenticeship program in electronics this spring, was among the 148 San Diego apprentices receiving graduation certificates at the occasion.

L. F. Kruse of Electronics-SD received a certificate of meritorious service for five years on the Joint Apprenticeship Committee.



APPRENTICE COMMITTEE—At first meeting of newly-appointed Convair Joint Apprenticeship Committee, from left clockwise, are Joe Aquileno, Ralph Monson attending for Marty Stutz, Ken Fawcett of SD Junior Colleges, H. A. Mohr, J. E. Royle, R. C. Neaves, J. A. Croft, chief of educational services, Merle E. Long, L. K. Thornbrugh, Fred DeGreef, and Wayne Turner.

Advance Ticket Sale Begins For Dodger vs. Met Game

Advance ticket sale to the L. A. Dodgers vs. New York Mets game on July 24 starts this week.

Seats must be reserved well before game date to assure the CRA-sponsored group trip. Two buses will carry 82 ball fans to the double-header in Chavez Ravine stadium. One bus will load north of Bldg. 19 at Lindbergh Field, and one at Kearny Mesa plant, in front of Bldg. 2 by the flagpole. Both depart at 9:30 a.m.

Price for transportation and game admission is $5.50. Seats are under the roof, between home plate and third base.

Reservations can be made at CRA Clubhouse, Convair and Stromberg-Carlson employe services, engineering mailroom on third floor, Bldg. 51, LF.

Bids Asked on Dozen Chevrolets, Fords

A dozen Chevrolet and Ford trucks, all 1963 and 1964 models, will be sold this month to General Dynamics bidders, R. H. Lange, Convair supervisor of material sales, announced.

Vehicles include: one station wagon; three ¾-ton pickups; one Econoline; one Carry-all; one Vannette; and five ¾-ton stake type.

All are located at the Kearny Mesa salvage yard where they may be inspected any day until 5:30 p.m., through June 23. Bids will be opened at 1:30 p.m., June 24.

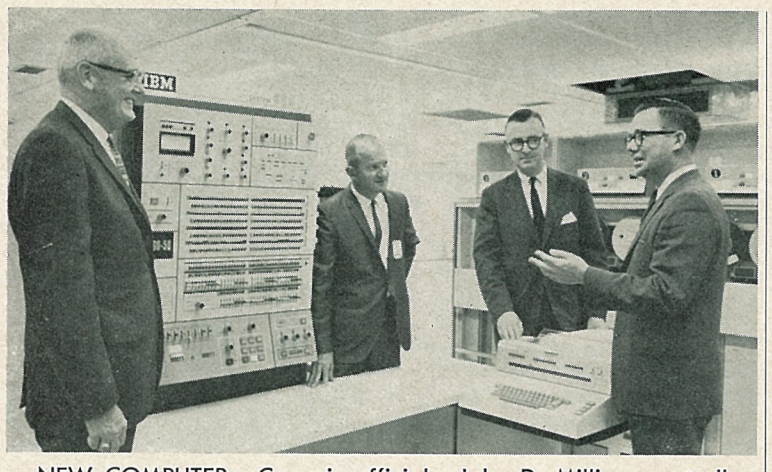
Bid forms are available at both Kearny Mesa and Lindbergh Field salvage yards.

For further information call ext. 1873 KM, or ext. 1609 LF.

Fish Derby Winners Will Receive Prizes

Winners of CRA Fishing Club's Salton Sea fishing derby June 11-12 will receive prizes at the regular club meeting June 21 at the CRA Clubhouse, Kearny Mesa. Potluck dinner starts at 6:30 p.m., business session at 7:30. Movies of fishing in Canada will be shown.

Non-members are urged to join the club to be eligible for monthly and special derby prizes.



NEW COMPUTER—Convair officials, John D. Milling, controller, and Don Pardee, acting manager of management systems, inspect new IBM 360 Model 50 installed in Convair data processing operations last month with Gerald Murphy, financial executive of Randolph Computer Corp., and Jack Arbour, executive vice president. Randolph Computer Corp. is leasing agent.

Advanced Computer System Adds Even Greater Speed

Another milestone in Convair's modernization of its data processing operations has been attained with the installation of an advanced IBM System 360 Model 50 computer.

This installation at the Kearny Mesa plant marks the third major step in the overall conversion to sophisticated third-generation computer equipment, and the first under a new procurement procedure.

Complying with Department of Defense guidelines for economical computer acquisition, Convair is now leasing computer equipment instead of entering into more costly rental agreements as in the past.

The new System 360 Model 50 is the first computer system furnished Convair under lease contracts with Randolph Computer Corporation, a company specializing in computer leasing.

"We expect to save more than $100,000 on the cost of this computer over the three-year contract period by the more realistic lease method of paying for its use," John D. Milling, Convair controller, said.

The System 360 Model 50 joins the System 360 Model 40, installed the first part of this year, for business systems data processing operations. It is faster than the IBM 7074 it replaces. It has a core capability of 131,000 8-bit characters compared to the 7074's 67,000 6-bit characters capacity. The System 360 Model 50 core can be expanded by the addition of modules to 524,000 8-bit characters.

Tape speed of the new computer can be increased to 180,000 characters a second, twice the speed of 7074 tapes.

In addition to the System 360 Models 50 and 40, Convair has three System 360 Model 30 computers in use supporting the large-scale computers.

"We are extremely gratified that our plans for updating our computer operations are progressing so satisfactorily and on schedule," said Milling. "We are not only reducing the cost of the division's computer processing operations, but achieving a higher degree of processing efficiency."

WHITFIELD NAMED S-C MKT. MANAGER

James P. Whitfield has joined Stromberg-Carlson as manager of marketing administration at Data Products division in San Diego effective May 31, according to Carl V. Shannon, Data Products general manager.

Whitfield reports directly to H. I. Jacobs, Data Products director of marketing. He comes to San Diego from Flushing, N. Y.

Over the last five years he had been with Sperry Rand Corporation's Univac Division as special consultant on the staff of the executive assistant to the president and staff assistant to the vice president of marketing.

He previously was with Honeywell's Electronic Data Processing Division and Underwood Corp.

Whitfield holds a degree in business administration from Iona College, New Rochelle, N. Y. He served with the U.S. Army from 1954 to 1956.

Coineers to Display Tokens at Meeting

Coineers will display tokens and commemoratives at tonight's (June 15) meeting, 7:30 p.m., in the Convair cafeteria, Pacific Hwy.

Door prizes will be 1961 and 1962 proof sets. A raffle will be held for 1897 and 1910 Liberty $5 gold pieces and three Capitol albums. A B.U. Canadian cent will be given all attending. The usual auction will be held and refreshments served.

Mgt. Club Helps Pay Toastmasters Dues For Participants

Convair Management Club will defray a substantial part of the annual dues of any General Dynamics employe belonging to, or joining, Convair Toastmasters or Toastmistress Clubs.

The club has agreed to pay $5 of the yearly fees levied by any one of the three GD-sponsored clubs — Dynamic Toastmasters Club 457, Convair Toastmasters Club 3745, and Serra Mesa Toastmistress Club.

The speech clubs give practical training and experience in preparing and delivering speeches, organizing and conducting meetings and programs, use of parliamentary procedure, as well as helping members to listen and think analytically, give and receive helpful criticism, and exercise management skills.

Information is available from: Dynamic Toastmasters, meeting Thursdays, 5:15-7 p.m. Call Fred Stevens, ext. 2017 KM, or Larry Sweeney, ext. 676 LF; Convair Toastmasters, meeting Wednesdays at 4:15 p.m. Call Hal Story, ext. 1827 KM, or Roy Gilliland, ext. 697 LF; Serra Mesa Toastmistress Club, meeting first and third Mondays, 7:30 p.m. Call Helen Maddox, ext. 2316 KM.

Blood Bank Sending Renewal Notices

San Diego Blood Bank is sending renewal notices to all Convair subscribers in the Blood Service Program as Convair's first year of participation in the insured blood plan ends this month.

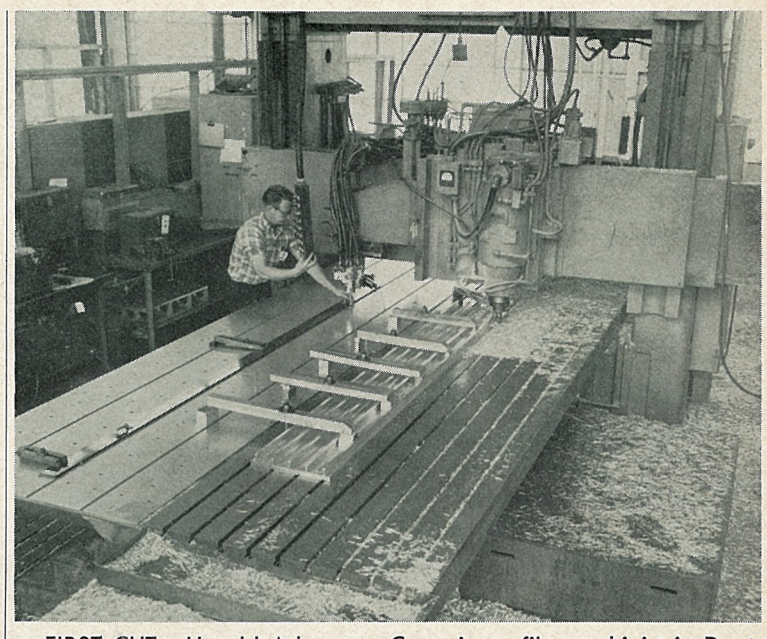
The Convair Blood Bank was discontinued a year ago and employes were given the opportunity to join the San Diego Blood Bank's program which entitles members to unlimited amounts of blood for nominal fees or a pint of blood.

Family membership for one year is $4, or one pint of blood. Individual membership is $2 for one-year membership or one pint of blood for a two-year membership.

Members may now renew their subscriptions by paying the fee or donating blood. All wishing to join may obtain subscription forms and information at Convair employe services.

TICKETS TO FAIR ON SALE AT $1

Reduced-price tickets to the Southern California Exposition and San Diego County Fair are still on sale for $1 at Convair and Stromberg-Carlson employe services, CRA Clubhouse, and engineering mailroom, Bldg. 51, Lindbergh Field. The 1966 fair at Del Mar opens next Friday, June 24, and will run through July 4.



FIRST CUT—Harold Adamson, Convair profile machinist in Dept. 015, cuts first C-5A specimen skin panel on Rockford profiler in Lindbergh Field plant machine shop. Specimen panels will go to Convair's structures lab for compression tests.

Japanese Navy Mission Views S-C's Data Products Displays

Stromberg-Carlson's airborne multipurpose displays for project A-NEW were displayed to members of a Japanese Navy Avionics Mission during a visit at the Data Products division in San Diego late last month.

Rear Admiral Sei Tsukada, deputy chief technical division, M.S.O., was accompanied by Capt. Ichiro Nakazato, chief, aviation weapons section, technical division, M.S.O., and Cdr. Osamu Karita, plans and program section, operations division, M.S.O.

Carl V. Shannon, manager, welcomed the delegation. Stromberg-Carlson men taking part in the presentation were Jim Redman and Bob Hayde of marketing Clay Murdock of advanced tube development, and Art Casey, project engineer.

Daniel Semels, Corporate manager of international market development, and Jacques D. Bambling, Corporate international market-research and planning, also were present.

Stromberg-Carlson is developing multipurpose displays for A-NEW, advanced antisubmarine warfare avionics system, under contracts with the Navy.



FROM JAPAN—Rear Admiral Sei Tsukada (center), Capt. Ichiro Nakazato (right), and Cdr. Osamu Karita of Japanese Navy Avionics Mission view A-NEW display at Stromberg-Carlson Data Products. Others, from left, are R. T. Hayde, Clay Murdock, Don Pugh of Stromberg-Carlson, Jacques D. Bambling of Corporate Hdqtrs.

'Members Only' Management Club Meeting Will Be Held at Catamaran Inn June 21

Goals and purpose of the National Management Association and its relationship with the local Convair Management Club will be outlined at a "members only" meeting June 21 in the Kon Tiki room of the Catamaran Motor Inn, Mission Blvd.

All present members and those interested in becoming members are urged to attend the annual member indoctrination meeting, said Mel Nunn, club membership chairman.

Social hour begins at 6 p.m., followed at 7:15 by a buffet dinner with choice of fried chicken or beef sukiyaki. Program starts at 8 p.m.

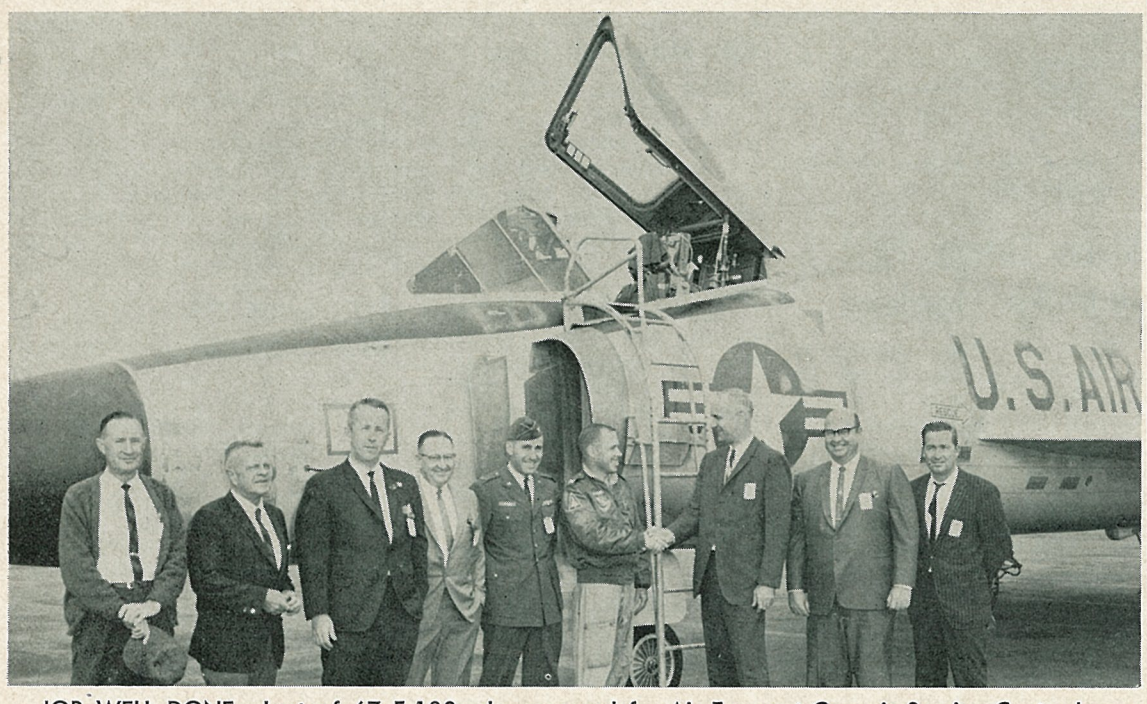
Two slide showings and talks will present NMA objectives. Outgoing and new Management Club boards of control and NMA representatives will be introduced.

Tickets at $1.50 each are available until June 18 from club Boosters.

Convair Employes Through Con-Trib-Club Donate $10,000 to Various Area Charities

Convair employes in San Diego and at Vandenberg AFB donated over $10,000 to five philanthropic organizations through their Con-Trib-Club last month.

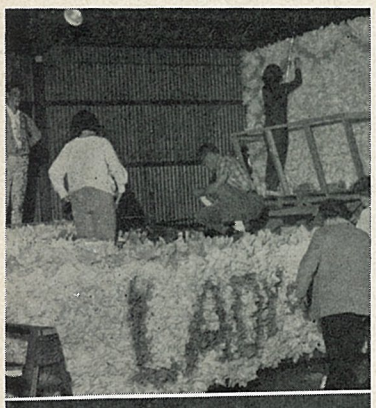
At its May 26 meeting the Con-Trib committee approved a gift of $750 for Linda Vista Branch of Boys' Club of San Diego for repair of the club building's gas lines. A sum of $2,700 was voted for Our Lady of Perpetual Help Hospital upon recommendation of the Vandenberg Employes' Advisory Committee. United Jewish Federation received $1,200 for its annual fund-raising campaign; International Guiding Eyes, Inc., $1,500 for operating expenses; and Salvation Army's Door of Hope, $4,000 for its building fund.



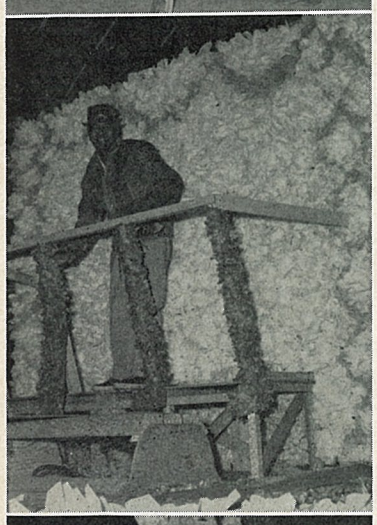
JOB WELL DONE—Last of 67 F-102s deprocessed for Air Force at Convair Service Center leaves plant end of May, ahead of schedule. In photo, Jack L. Bowers, Convair division manager (third from right), says farewell to Capt. Larry Smith, AF pilot in charge of flight test of F-102s during refurbishing. At far right are E. J. Huntsman, Service Center manager, and J. E. Cassidy, Service Center operations supervisor on F-102s. Others, from left, are Jack Shinn, Ralph Damon, J. B. Gibbins Jr., J. C. Nemec, Col. James R. Ourand, all of San Diego DCAS Plant Representative's Office.

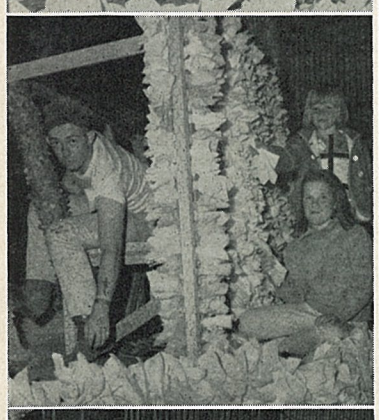


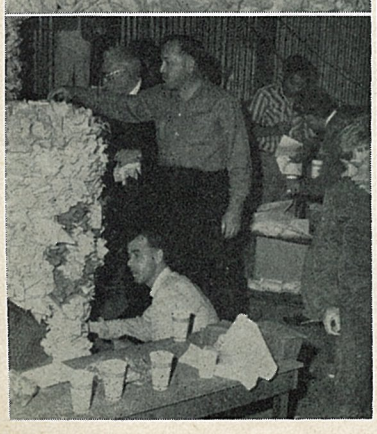
PARADE TOPPER—Float, designed and constructed by Convair people assigned to Vandenberg AFB, won sweepstakes in annual parade June 4 at Santa Maria. It is shown here passing Santa Maria Inn on South Broadway. Aboard float are Ann Cordial, Tony Valdivia, Pat Susee and Betsy Roy, all Convair. In photos at left below, Convair folk stuff paper napkins night before parade. Small fry were much in evidence.











35,000 Napkins

Versatile Vandenberg Employes Build Winning Parade Float

Convair folk at Vandenberg wore jubilant smiles early this month when the big float they put in the Santa Maria Elks rodeo parade chugged off with top honors.

The Convair entry, designed by Tony Estalio of Dept. 985-1, came down the parade route as a 40-foot long Spanish guitar, faithfully detailed right down to tuning keys and guitar strings.

Three lovely senoritas — Betsy Roy of Abres A, Ann Cordial of office services and Pat Susee of material control — wore costumes they created themselves and added attractive human interest on the float, titled "Lady of Spain."

To complete the pageantry, Tony Valdivia of design support appeared as a handsome Spanish don, rendering guitar serenades.

Judges clearly felt the float showed both originality and fidelity to the theme "Songs of Yesteryear," because they awarded it the sweepstakes trophy.

"This is the first time we entered this event in eight years up here," said Phil Stone, chief of industrial relations at Vandenberg, "and winning gave a good boost to our morale."

More than 100,000 persons saw the parade, led by Gov. Pat Brown, Major. Gen. Harold Humfeld, Brig. Gen. Joseph Bleymaier, and television star Barry Sullivan, as honorary grand marshals.

The big guitar, mounted on a jeep loaned by Joe Hickey and Sam Williams of Dept. 985-3, was driven in the parade by Colin Sword of design support with Gerry Neff of office services as "co-pilot." Stan Carpenter of Dept. 985-4 and his son, Dave, walked the parade route to help guide the float straight down the middle.

Basic construction was a wooden framework covered with poultry wire. The night before the parade some 50 employes, dependents and friends worked late stuffing the wire openings with colored paper napkins.

Jim Gardner, an engineer in design support, estimated this job took 35,720 napkins! CRA furnished refreshments to the float trimmers.

On the weekend of June 24-25 Tony Estalio's volunteer "floating task force" will re-do the float with thousands of live blooms from the Lompoc flower fields and enter it that weekend in the Lompoc flower festival parade.

Cosmos and Underbrush Tied In Fast-Pitch Ball League

Cosmos and Underbrush stood tied at three wins, no losses after four weeks of play in Convair's fast-pitch softball league. Flight Control had won three, dropped one.

Other standings were: Tecnics, 2-2; Spoilers, 1-3; CSTS and 963, both 0-3.

CSTS will meet Cosmos Bums this Saturday, June 18, 10 a.m. Flight Control and Underbrush play at 6:45 p.m. June 21, followed at 8:30 p.m. by 963 and CSTS. Tecnics and Cosmo Bums meet on Saturday, June 25, 10 a.m. All games are played on the Kearny Mesa field.

Second half starts June 27.

* * *

Anything can happen in the slow-pitch leagues with teams bunched at the end of four weeks.

In the National League, Bullet Biters had a narrow lead with a 3-1 standing. Test Lab, Material, GASP, and Bean Counters all had won two, dropped two. Hustlers trailed with 1-3.

Floxers led the American League, 4-0. GD/E Bombers and Stromberg-Carlson were tied, 3-1. Aero Lab and Plastics held 1-3 standings, and Operations was 0-4.

Second round games began this week for both leagues.

ROCKHOUND SHOP TO CLOSE JUNE 22

CRA Rockhounds lapidary workshop at Gillespie Field will close after next Wednesday for its annual summer renovation. June 22 will be the last workshop session until Sept. 7. The Kearny Mesa workshop will remain open on regular schedule, Mondays through Thursdays, 7-9 p.m., and Saturdays, 10 a.m. to 5 p.m.

Vivian Thomas First In Bridge Standings

Winners in CRA Bridge Club's six-week series were Vivian Thomas, first; Howard McCullough, second; Ceil McCullough, third; Francys Darr, fourth; and Freddie Combs, fifth.

Al Hinden and Ed Lou took North-South honors in Master Point play June 3. Mitzi and Bob Rustad were East-West winners.

In other bridge play during last month, Al Hinden and Freddie Combs won North-South, and Bert Grindstaff and Howard McCullough, East-West on May 13; Mr. and Mrs. Rustad, North-South, Eleanor Brittain and Walter Emmert, East-West, on May 20; Sophia and David Krause, North-South, Freddie Combs and Eve Leasure, East-West, May 27.

PADRES TICKETS OFFERED IN DRAW

Free tickets to Padres' July home games will be up for grabs in the CRA baseball drawing the end of this month.

All entries deposited in Baseball Drawing boxes throughout the plants by June 27 will be eligible. Drawing will be June 29.

Winners get free tickets to one of next month's scheduled games. Schedule is: July 1, Portland; July 2, 3, 4, Phoenix; July 8, 9, 10, Hawaii; July 11, 12, 13, 14, Seattle; July 15 through 21, Denver.

Entry slips must include name, division, plant, department number, shift, plant phone extension. Only one entry is allowed each individual.

Boxes are located at employe services outlets at Convair plants, Stromberg-Carlson, Electronics; CRA Clubhouse, Kearny Mesa; engineering mailroom, Bldg. 51, third floor, Lindbergh Field; office of H. C. Medearis, Bldg. 3 mezz., Plant 19.

Industrial Bowling Tourney Scheduled

San Diego fourth annual Men's Industrial Bowling Tournament is scheduled July 16-17, 23-24, at Clairemont Bowl with sign-up deadline midnight of July 4.

Entry forms for General Dynamics and government employes at plant facilities are available at the CRA Clubhouse, Convair, Stromberg-Carlson and Electronics employe services outlets.

Maximum entering team average is 900; doubles, 400. Teams will be handicapped two-thirds of 900; individuals, two-thirds of 200. Bowlers must use their 1965-66 book average or average of 21 games or more as of April 1, whichever is highest.

Entry fee per man for each event is $3.75. An all-event entry fee of $2 is optional. There will be one cash prize to every eight entries. Wristwatches will be awarded first-place, team, doubles, singles, and all-events.

Contact Sam Bucaro, ext. 2113, Kearny Mesa, for more information.

Budget Executives Honor J. B. Morgan

John B. Morgan, chief of financial control at the Convair Service Center, was honored at the recent annual conference of Budget Executives Institute in Detroit, Mich.

Morgan received the Neil Denen award given each year to the BEI member who has contributed most to the advancement of the Institute in the field of financial planning, budgetary control, and education at the chapter, regional, and national level.

Morgan, a member of the Institute for over 12 years, has served in various chapter offices in Dallas, Texas, and San Diego, Calif.

Bill Howard Tops Delta Spearfishing

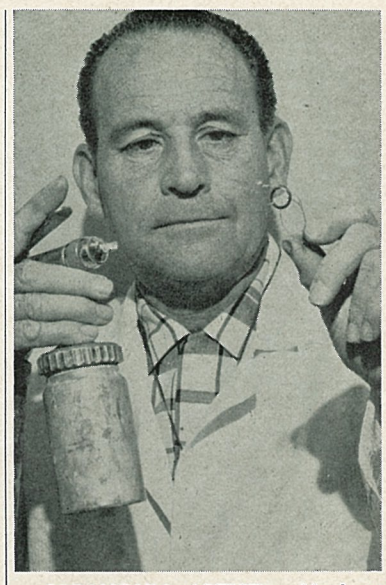
Bill Howard hauled in 10½ pounds of fish at the Delta Divers' spearfishing meet last month off Del Mar to nose out Bob Nicholas for first place. Nicholas came in a close second with 10 pounds. Chuck Davis speared seven pounds for third.

Club members at the June 8 meeting saw a film of Electric Boat division's submarine and deep-sea explorations and new deep-sea experimental vehicles now under development.

Annual Bowl Picnic July 10 at Felicita

General Dynamics employes and their families are invited to the San Diego Bowlers Association's annual picnic Sunday, July 10, at Felicita Park, just off Hwy. 395 near Escondido.

Games, contests for prizes, and buffet of barbecue beef, beans, potato salad, dessert will be on the program. Cost is $1.50 for adults, 75 cents for children. For tickets and information call Sam Bucaro, ext. 2113 Kearny Mesa.



SPRAYGUN ARTIST — Herbert Urbach of Convair division paints and coatings lab demonstrates technique of painting teflon onto rubber O-rings to reduce friction.

Light Touch

Teflon Coating Proves Answer

Adeptness of a painter in spraying liquid Teflon onto half-inch rubber O-rings to a depth of only .0002-inch has helped Convair lick a sticky problem.

The important little Teflon-coated rings are used in Centaur pin puller mechanisms and have to work fast and properly when nose fairings are jettisoned or a Surveyor spacecraft separates from Centaur. Others of various sizes are used for a multitude of other sealing installations.

Materials research engineers several years ago realized that rubber O-rings, coated with grease for lubrication, stick and have too much "breakout friction" after being unused for a time.

According to Joseph Hertz, Convair senior research engineer, Dept. 571-2, Stanley Yalof first sought a solution in 1961 by coating rings with Teflon, which has the lowest friction coefficient of a known solid. Since then the process has been perfected and "painted" rings have been used on Centaur since last summer.

Key man in the process is Herbert Urbach, Dept. 572-2, manufacturing development technician, who has become so adept with a spray gun that he rarely fails to achieve the correct thickness.

Fish Fans to Enter Exhibits at Fair

Convair tropical fish fanciers will enter their more exotic exhibits in the San Diego County Fair which opens next Friday, June 24, at Del Mar.

Dick Rowe, Dept. 835-4, heads the committee in charge of entries. Others are John Madryga, Dept. 565-1; Tony Hwozdeck, Dept. 951-7; Saul Rodriquez, Dept. 958-7; and Bud L'Heureux, Dept. 988-8. Every member of the committee intends to have at least one aquarium on display at the fair.

The 30-gallon show tank which the club is building for decoration of the CRA Clubhouse lobby will be completed and installed this month. The tank will be stocked and maintained by club members.

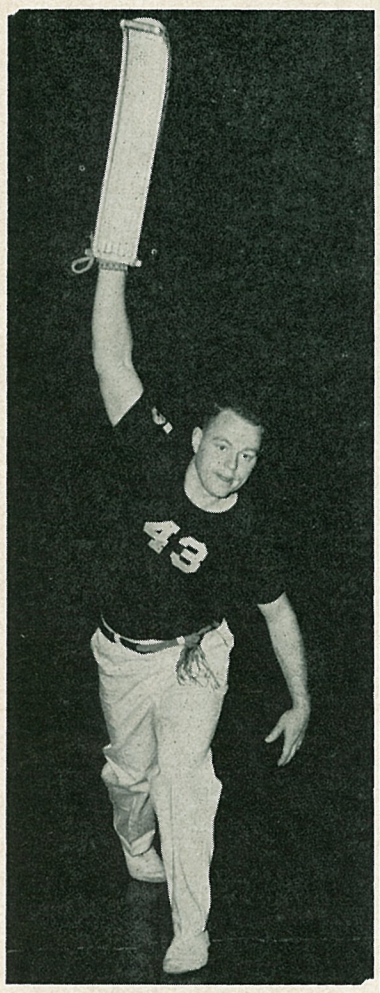
Discount Offered To Starlight Opera

Exchange tickets allowing a 50-cent reduction in admission to all Starlight Opera productions this summer now are available at CRA Clubhouse, Convair, Stromberg-Carlson, and Electronic employe services outlets.

Tickets may be exchanged at the Community Concourse box office.

The summer schedule is: "Flower Drum Song," July 14-24; "Kiss Me, Kate," July 28-Aug. 7; "Tom Sawyer," Aug. 11-21; and "South Pacific," Sept. 1-11.

When telephoning, never mind the weather. Get to the point. Telephone time costs money.



EX-AMATEUR — Richard Roberts, Convair illustrator and amateur jai alai player, is now so good at the game that he has turned pro.

He's First

Roberts Now Jai Alai Pro

Richard A. Roberts, a Convair senior technical illustrator in Dept. 954-4 at Kearny Mesa, is the world's only non-Latin professional jai alai player.

You may have seen him on television Feb. 28 when he and two imposters using his name stumped the panel on the CBS "To Tell the Truth" program.

Roberts, known as Richard by Southern California jai alai fans, has been fascinated by the "world's fastest game" since he was in junior high and played with a rubber ball and homemade cardboard cestas. His first real cesta was a well-used one given him by the late star Azumendi.

After spending much of his spare time for 10 years practicing and playing as an amateur at Tijuana's Fronton Palacio, he landed his first professional contract for play in the border city beginning this year.

Competition is at night and thus will not interfere with his regular work.

Roberts majored in art at San Diego State College and sees a lot of similarity between the grace and form of jai alai and the art work he does for Convair. Many of the paintings and sculptures he did in college were of jai alai players.

Roberts and his wife and two young children live in Lemon Grove. He speaks little Spanish or Basque but says he gets along fine with the jai alai players from Spain and Mexico. "I would never have made it without their help," he says.

New Ceramics Group Offers Instruction

A new ceramics group has been formed for all General Dynamics people interested in the art.

The club meets twice a week, Tuesdays and Thursdays from 7 to 10 p.m., in the CRA workshop. Instruction is available for beginners. The group now is buying molds so that members may mold their own original greenware.

Betty Stenger heads the group as leader with Billie Birdson, secretary-treasurer. For further information, call Billie on ext. 2645, Kearny Mesa.

Free Ice Skate Session Offered All Dynamics People June 23

Convair Ice Skating Club opens its summer season with a free skating session for all General Dynamics people on Thursday, June 23, at the Mission Valley Ice Arena from 6:15 to 7:45 p.m.

Only charge will be a skate rental fee of 35 cents for those not owning skates.

Commissioner Bud Davies urges everyone interested to join the club skaters at the rink. "Although normally associated with winter sports, ice skating is a year-round activity and there's no pleasanter way to cool off on a summer evening than on the ice."

The CRA club sponsors a private session for GD skaters at the Mission Valley Ice Arena each Thursday evening, starting at 6:15 p.m. Members are admitted at reduced rates and may stay for the public session, 8-10:30 p.m., at no added charge. Professional instruction is provided for both children and adults in beginning and advanced groups.

In addition to the weekly skating sessions, the club schedules periodic weekend trips to Big Bear Lake, other Southern California ice rinks, and special events such as the recent Ice Capades in the Los Angeles Sports Arena.

Membership fee is only $1 a year for the entire family.

For additional information on club activities call Davies, ext. 2751, KM.

CRA Calendar

(For information on CRA activities call CRA Headquarters, Kearny Mesa, ext. 1111. Deadline for copy for the next issue of GD/NEWS is June 22. Call ext. 3322 KM or 1071 LF.)

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ADVENTURERS—Meeting tonight (June 15), 7:30 p.m., CRA Clubhouse.

BADMINTON — Play Mondays, 7-10 p.m., Federal Bldg., Balboa Park.

BICYCLE CLUB — Meeting June 27, 7:30 p.m., CRA Clubhouse.

BRIDGE — Play each Friday, 7:30 p.m., CRA Clubhouse.

CERAMICS — Group meetings and workshops open to all GD people Tuesdays and Thursdays, 7-10 p.m., CRA Clubhouse.

CHESS — Play each Wednesday, 7:30 p.m., CRA Clubhouse.

COINEERS — Meeting tonight (June 15), 7:30 p.m., Convair cafeteria, Pacific Hwy.

DRAMA — Meeting June 27, 7:30 p.m., CRA Clubhouse.

FENCING — Workouts and instruction Fridays, 7:30-10:30 p.m., YWCA, 10th & C Sts.

FISHING CLUB — Meeting June 21, CRA Clubhouse, Kearny Mesa. Potluck at 6:30; meeting at 7:30 p.m.

ICE SKATING — Free skate session for all GD people June 23, Mission Valley Ice Arena, 6:15-7:45 p.m.

JUNIOR SCIENCE — Meeting June 17, CRA Clubhouse.

MOVIES — Reduced prices at State Theater, Euclid & El Cajon Blvd. Admission: adults, $1; children, 35¢.

PISTOL CLUB — Club shoot June 26, 9:15 a.m., SD Police Range, Federal Blvd. and Home Ave.

RADIO CLUB — Meeting June 16, 7:30 p.m., Harbor Drive club headquarters.

ROCKHOUNDS — Gillespie Field rockhound shack closed after June 22 until Sept. 7. Kearny Mesa lapidary workshop open on regular schedule.

ROLLER SKATING — Free skate night June 20 at Skateland, Front & G Sts. Tickets at CRA Clubhouse and employe services outlets.

SCULPTURE — Workshop sessions, Mondays, 7:30-10:30 p.m., CRA Clubhouse.

SPANISH — CRA-sponsored course starts June 23, 7-9 p.m., Convair executive dining room, Pacific Hwy. Reservations open now for annual summer tour to Mexico, Aug. 13-28. Call Jim Hardison, 276-5805, for information.

SPORTS CAR CLUB — Atlas VIII Rallye June 26. Start from CRA Clubhouse parking lot at 9:01 a.m. Call Larry Dennis, 277-0941 or Marvin Jensen, ext. 1361, KM, for information.

SWIMMING — Free family swim night June 18, 7-9 p.m., Mission Bay Plunge. Tickets at CRA Clubhouse and employe services outlets.

TENNIS — CRA-Management Club tourney June 18-19, 25-26.

TOASTMASTERS — Convair Toastmasters No. 3745 meet Wednesday, 4:15 p.m., Dynamic Toastmaster No. 467, Thursdays, 5:15 p.m., both in CRA Clubhouse.

TOASTMISTRESS CLUB— Serra Mesa Club meets first and third Mondays, 7:30 p.m., CRA Clubhouse.

TRAILERS — Travelers' outing June 18-19 to CRA Pine Crest mountain resort. For information, call Virg Marshall, ext. 3541 KM. Road Runners to meet June 23, 7:30 p.m., Gillespie Field Clubhouse.

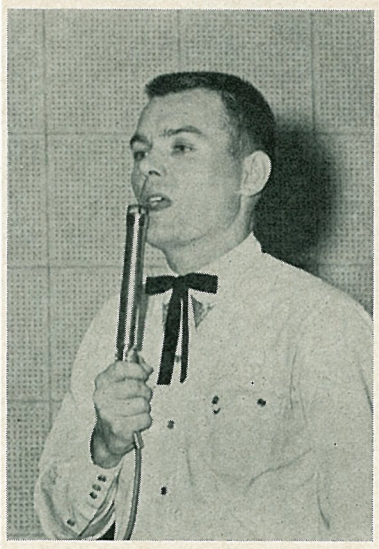
Reluctant Sq. Dance Novice Catches on, Becomes Pro Caller

A Convair facilities engineer who was persuaded against his wishes to attend his first square dancing session some 14 years ago is now one of the most expert callers in the area with several dance "discs" to his credit.

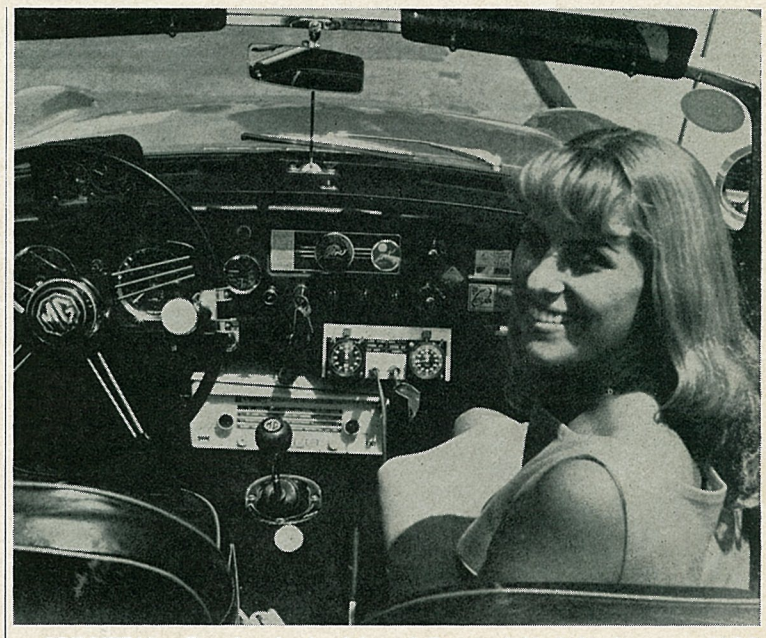
Dale Durbin (Dept. 250-2) recalls that his wife literally had to drag him to the "Jeans in Calico" square dancing group back in 1952 for his first taste of dose-do. Within a few months he was instructing and calling and had formed a group of his own, the Square Knots, 16 youngsters from 8 to 11 years old. These young whirlers met every week for instruction in the Durbins' lanai and were in demand for demonstrations and special performances.

Durbin went on to become a professional caller, and for a number of years was instructor and caller for three different groups.

He still spends two or three nights a week teaching and calling — Wednesdays, teaching a class in square and round dancing, and Fridays calling for the Square Eighters of East San Diego; and two Saturdays a month calling for the Square Wheelers, an invitational group in Spring Valley.



SQUARE 'EM UP — Convair's Dale Durbin is caught in action — calling for square dance groups, his full-time "hobby."



PRE-VIEW—Carole de la Isla of Dept. 141-2 looks over MGB sports car which Dennis Scannell (Dept. 141-3) will drive in coming Atlas Rallye VIII, set for June 26.

Sports Car Club Gets Ready For Annual Rallye June 26

Convair Sports Car Club will stage its annual open championship event, Atlas Rallye VIII, on Sunday, June 26, from the CRA Clubhouse parking lot at Kearny Mesa plant.

The yearly event, which last year drew a field of 75 cars, is open to all sports car drivers and sanctioned by the San Diego Council of Sports Car Clubs.

Pre-entry fee is $5 per car if paid before June 22. Post-entry cost is $6. An additional $1 fee is levied for a three-car team.

The six-hour run will take contestants over 200 miles of San Diego county roads. First car will leave the CRA Clubhouse at 9:01 a.m. All entries are to check in at least 30 minutes before starting time.

Cars may be entered in three classes: navigational (no restriction on computing devices); seat-of-pants (no calculating devices allowed and odometers painted out); and team (any three-car entries, to be specified on pre-entry only).

Dash plaques will go to all cars Trophies will be awarded driver and navigator, first through fifth places; and to driver only, sixth through 10th, in both navigational and seat-of-pants classes. Team trophies will go to first, second, and third.

Entry forms are available at CRA Clubhouse and employe services outlets. Pre-entries should be mailed to Marvin Jensen, 5937 Erlanger St., S.D. Larry Dennis of Electronics - SD is rallyemaster and may be contacted through his home phone, 277-0941, for more information.

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Dennis Scannell (Dept. 141-3) and his wife, Dorothy, were the only Convair sports car fans to place in the San Diego MG Club's Safety-Fast VII rally last month. The Scannells drove a Hertz Shelby American G. T. 350H Mustang over the nine-hour course with only a 2.22-min. error to take first in the seat-of-pants class.

230-Member Convair Sail Club Boasts Fleet of Five Sloops

Convair's 230-member Sailing Club has purchased five new 21-foot Victory-class sloops to replace five 14-foot Galaxie sailboats sold several weeks ago.

The sloops, identified by sail numbers 453 through 457, carry from two to eight people. They are anchored at Half Moon Anchorage on Shelter Island and the club uses San Diego Bay as its prime sailing area. The fiber glass sloops weigh 1,350 pounds each and have a 185-square-foot sail area.

Sailing Club members conduct two classroom meetings and three two-hour water sessions monthly for beginners over 16 years of age. The club's annual membership fee is $3 for employes and $1 for dependents.

The club was organized in 1963 and has $11,000 invested in the five sloops and related sailing and water safety equipment. A fee of $2 per hour is charged for use of the boats. Races for club members are held each month and the club plans to enter the new sloops in future races and regattas.

Jerry Toyen is club commissioner and Mahlon Winter is commodore. Other officers are John Shaul, vice commodore; Marsha Toyen, secretary; Bob Barkdoll, treasurer; Norman Reed, communications officer; Irv Steinberger, chief of maintenance; Charles McLean, chief of racing, and Ron Wagar, chief of education.

The club meets at 7:30 p.m. the fourth Wednesday each month in CRA Clubhouse. For further information, call Wagar at KM ext. 1747.

Jankowski, Miller Coin Exhibits Win

Rosemary Jankowski won first place with her coin exhibit at the May 18 competition of CRA Coineers, attended by over 100 members and guests.

Charles Miller took second, and Herb Rubottom, third. Junior awards went to David Nelson, first, and Marcia Jankowski, second.

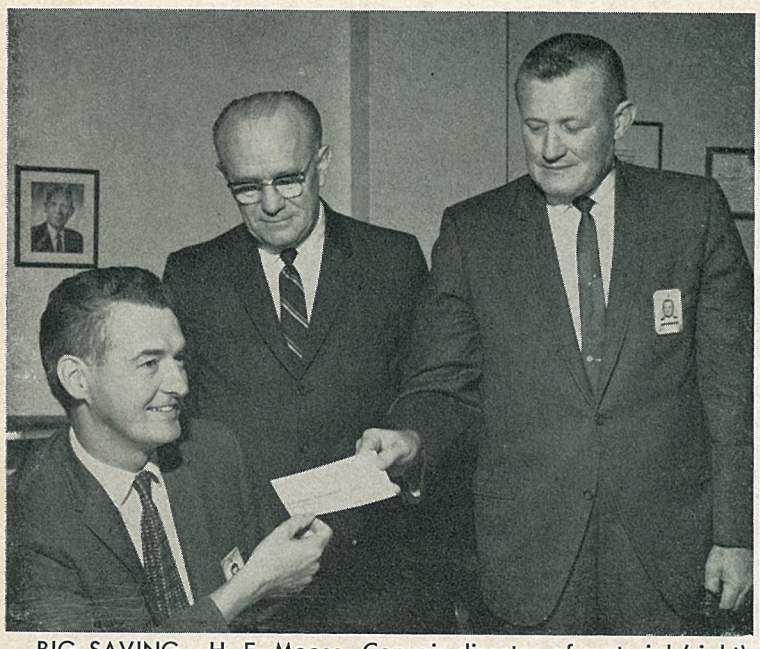
Winners in the drawings were Danny Gibson, 1961 proof set; Larry Sweeney, 1962 proof set; Steve Ames, $10 gold piece; and C. F. Bolander, $5 gold piece.

Raymond Toy described and showed slides of World War II currency.

Next meeting will be tonight (June 15), 7:30 p.m., in the Convair cafeteria, Pacific Hwy.



SMOOTH SAILING — Mahlon Winter, commodore of CRA Sailing Club, at stern of one of club's new Victory class boats, and George Ashby, crew, maneuver for starting position in club's June regatta off Bali Hai dock. Club now has five of new 21-ft. sloops for members' use.



BIG SAVING—H. E. Moose, Convair director of material (right), and W. G. Evans, chief of material contracts and proposal development, present ES award of $799.10 to Thomas M. Gardiner, Dept. 802-0, (seated) for suggestion which will save division approximately $8,000 a year.

Largest Cash Award of Year Collected on Purchasing Idea

Largest single award for an Employe Suggestion approved so far this year at Convair has gone to Thomas M. Gardiner, contract representative in material department, for a suggestion that will save the division nearly $8,000 the first year.

Gardiner's suggestion eliminates the writing of individual formal letters of justification on purchase orders requiring customer approval by substituting a checklist with appropriate justification paragraphs.

The form allows the buyer to check off paragraphs which apply to each particular purchase order.

Use of the new checklist form is expected to save approximately 1,500 manhours and $7,991 the first year. Gardiner (Dept. 802-0) received $799.10, or 10 per cent of the first-year savings.

POEM MERITS AMVETS AWARD

Nancy Dittmann, 14, daughter of Willard L. Dittmann of Dept. 951-1 at Kearny Mesa, has been awarded an Americanism plaque by the AMVETS Post 5 Auxiliary for a poem titled "I Am Your American Flag." She is a ninth grader at Horace Mann Jr. High.

VOLUNTEER SCOUT WORKERS SOUGHT

Men with an interest in youth are needed to serve as neighborhood commissioners for the San Diego County Council of the Boy Scouts of America. "It's a labor of love but very rewarding," Robert J. McPherson of Convair division Dept. 566-3, said. Phone McPherson after 6 p.m. at his home, 281-6544.



"CAB" IN PLACE—Prefabricated airport traffic control cab topping 50-ft. steel tower at north end of Lindbergh Field, San Diego, Calif., is one of 35 under construction at Canadair Limited for Federal Aviation Agency. At right, Wade Kemper, FAA resident engineer, checks installation with Canadair erection manual. Tower will go into operation early next year with opening of new airport terminal.

People Mobility

Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

JOHN C. BURKE (1943) from Convair division to tool and operations planning assistant supervisor, Fort Worth division; **HAROLD B. OTT** (1947) from Convair to quality assurance engineer, Fort Worth (Edwards AFB); **FREDERICK L. SHUTER** (1946) from Convair to F-111 logistic support, Fort Worth; **LELAND L. SHORT** (1963) from Convair to staff associate, General Atomic; **MARION A. ROSE** (1961) from Convair to research assistant, General Atomic; **WENDELL L. SITTSER** (1959) from Convair to marketing, Electronics, Rochester; **MARTIN J. O'CONNELL JR.** (1961) from Convair to purchasing, Electronics, Rochester; **JAMES S. HALL** (1956) from Corporate Headquarters, to 111 program representative (London), Fort Worth; **RICHARD RUDCZYNSKI** (1958) from Stromberg-Carlson, Rochester to industrial engineering, Electronics, Rochester; **JOHN J. ZENTIS** (1957) from Stromberg-Carlson, Rochester to manufacturing engineering, Electronics, Rochester.

USNS Redstone In Sea Trials With GD Crew

The Project Apollo tracking-communication ship USNS Redstone underwent initial sea trials last week, two days ahead of schedule and just six months after being floated from her building basin at Quincy, Mass.

Manned by a General Dynamics crew, the ship demonstrated her seaworthiness and tested propulsion, steering and other systems during the one-day builder's trials.

USNS Redstone is one of three World War II T-2 tankers being converted by General Dynamics into instrumentation ships to track and communicate with American astronauts during missions to the moon.

USNS Vanguard, which underwent builder's sea trials Jan. 28, is currently undergoing Phase II testing.

The conversion program involves lengthening, widening and making extensive modifications to the ships and installing more than 400 tons of electronic equipment aboard each.

USNS Redstone will be the first of the three vessels to be equipped with a special system that will permit it to communicate around the world via communication satellites.

The ship, which displaces 22,000 tons fully loaded, is 595 feet in length with a beam of 75 feet, is scheduled to be ready for operational service this December. She will be stationed in the Indian Ocean during the manned lunar missions.

Six divisions of General Dynamics, with the Electronics division, Rochester, as prime contractor, are involved in preparing the ships for use by NASA and DOD.

The conversion program is directed by the Instrumentation Ships Project Office within the Department of the Navy. The ships will be manned by crews of the Military Sea Transport Service and their instrumentation systems will be operated by USAF with technical assistance from NASA.

Huggens of Pomona National IFPA Prexy

Gene M. Huggens of Pomona division has been elected national president of the Industry Film Producers Association. Announcement was made at the organization's seventh annual conference and trade show exhibit at Miramar Hotel, Santa Monica, June 2-4.

A graduate of University of Southern California, Huggens is a past president of the Southern California chapter of IFPA. He joined General Dynamics in 1960 as motion picture coordinator and is now photography group supervisor in engineering publications graphics.

Technical Papers Sought by ASTME

The American Society of Tool and Manufacturing Engineers has issued a call for technical papers suitable for presentation at ASTME meetings during the year.

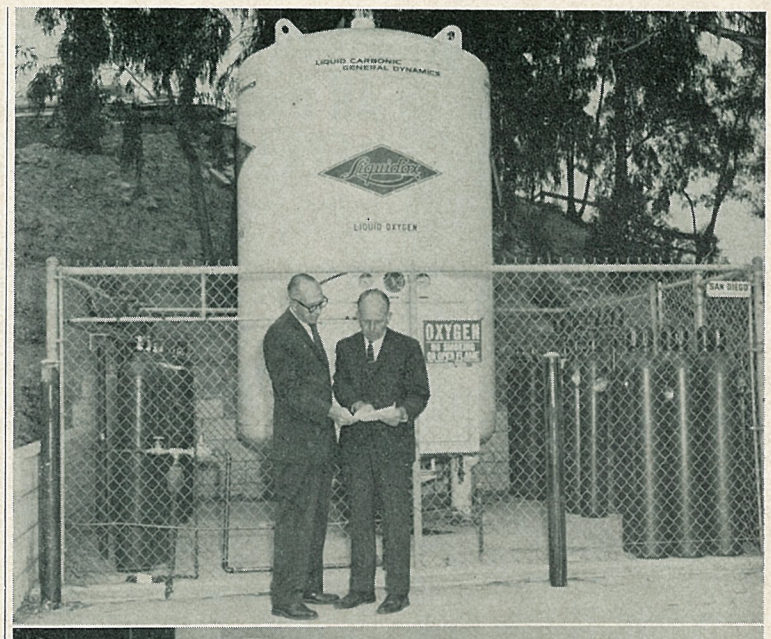
Prospective authors are directed to write to Director of Engineering Conferences, ASTME, 20501 Ford Road, Dearborn, Mich. 48128.

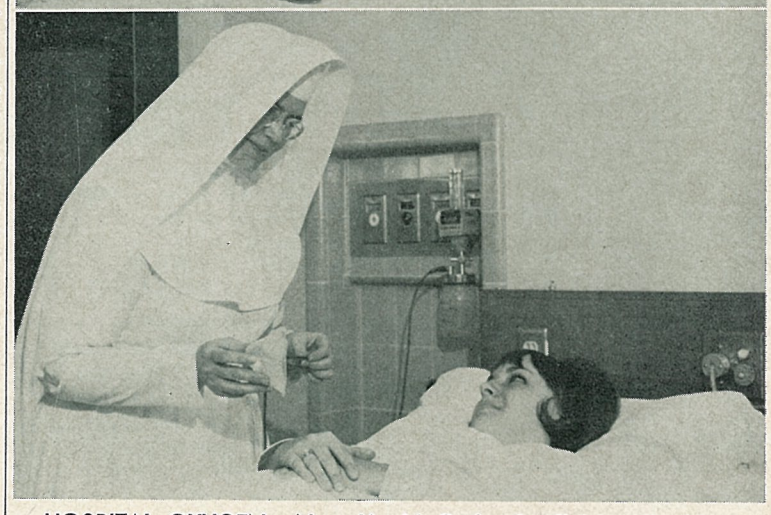
EB Proposal Group Attending Workshop

E. D. Heller, Convair division manager of cost reduction and value control, and E. A. Lindem, educational specialist, this week are conducting two 16-hour value engineering workshops for personnel in a proposal development group at Electric Boat division in Groton, Conn.

BARNES TO CHAIR NATIONAL SESSION

W. T. Barnes, Pomona division design specialist, will act as chairman of a session at National Society for Applied Spectroscopy meeting June 13-17 in Chicago.





HOSPITAL OXYGEN—New Liquid Carbonic division liquid oxygen storage facilities at Mercy Hospital are discussed (top photo) by Thomas Paddock, left, LC's San Diego branch manager, and Frank Ryan, director of plant operations and chief engineer for hospital. Below, Sister Marian Pius demonstrates oxygen outlet in hospital room.

Liquid Carbonic Oxygen Supply Serves New Hospital on Coast

Liquid Carbonic division of General Dynamics is providing oxygen and its storage facilities for the new $15 million, 12-story Mercy Hospital in San Diego.

A stainless steel tank, insulated and within a vacuum inside a covering steel tank on the hospital grounds, holds 1,250 gallons of liquid oxygen which vaporizes at the site into 125,000 cubic feet of gaseous oxygen.

Thomas Paddock, San Diego branch manager for Liquid Carbonic, said the gaseous oxygen is released under pressure into the new hospital and adjacent Guadalupe Clinic buildings and through a central piping system within the building walls into approximately 450 oxygen outlets in patient rooms, operating rooms, and outpatient clinic facilities.

Installation of the central supply piping system as the new hospital was constructed eliminates the need for use of unsightly gas cylinders on carts throughout the hospital and will eliminate waste and personnel time required for checking such containers.

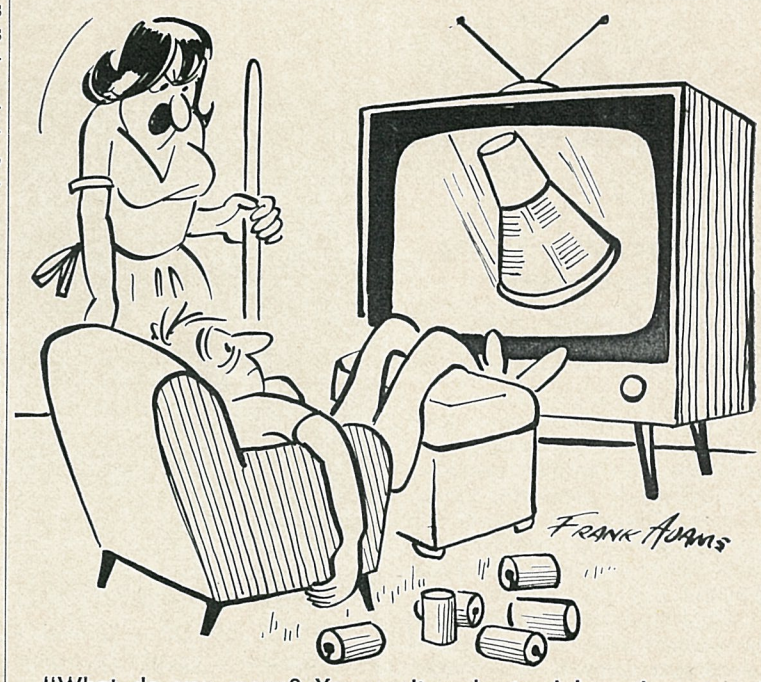
Attractive panels in each patient room provide outlets for plug-in of oxygen flowmeter, air and vacuum equipment. The gaseous oxygen can be channeled through respirator units for positive pressure use or through lightweight polyethylene (plastic) masks where artificial-pressure breathing assistance is not required.

Paddock said the large liquid oxygen storage tank has a built-in safety system. If pressure drops below 60 pounds, an alarm sounds and oxygen from adjacent reserve cylinders on the "pad" is automatically fed into the distribution system.

Nitrous oxide in other cylinders at the same location also is fed through separate lines into the hospital for use in anesthesia machines in the 12 operating rooms.

July 4 to Provide A Long Weekend

General Dynamics people will enjoy another three-day weekend with July 4 falling on Monday. All plants will be closed that Monday except for necessary maintenance and security functions. Shifts will resume work at regular hours on Tuesday (July 5).



"What do you mean? You can't understand how they stayed in that position for eight days? *You did!*"

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 19, No. 13 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, June 29, 1966

Manned Entry Studies Begun For Langley

Kenneth S. Coward and Ola Brevig, Convair division engineers conducting analytical studies on use of the propulsive lift concept for design and landing of manned entry (PLAME) vehicles, recently spent two weeks visiting aircraft and engine manufacturing firms in Europe.

Under the first task order of a PLAME study contract from NASA's Langley Research Center, they were securing information on turbojet, turbofan and liftfan engines that may be available for manned entry vehicles in the 1970-75 time period.

They met with officials and engineers of Rolls-Royce in Derby, England; General Aeronatique Marcel Dassault in Paris, France; Dornier in Friedrichshafen, Germany; Entwicklungsring Sud in Munich, Germany, and Vereinigte Flugtechnische Werke in Bremen, Germany; and conferred with Hans Kuhne, aviation expert in the Ministry of Foreign Affairs of the Danish government in Copenhagen.

Before leaving for Europe, Coward and Brevig visited Continental Motors in Detroit, General Electric's lift fan and lift engine facility in Evandale, Ohio, and the Allison Division of General Motors in Indianapolis. They also visited NASA-Langley for a conference with William Nelson, PLAME program manager.

The $57,500 first task order contract covers a broad six-month study of propulsive system prospects including realistic estimates of system performance, assess-

(Continued on Page 2)

$7,500 CON-TRIB GIFT PRESENTED

Electronics-San Diego Con-Trib-Club recently delivered a check for $7,500 to United Community Services of San Diego County. The presentation was made by Ray Trent, Jim Weaver and George Leesch and represents one-half of the club's UCS pledge for the year.



PRIME PROJECT—H. M. Bonesteel, left, program manager, and H. L. "Chips" Obertreis, ground systems, booster vehicle and launch operations coordinator, discuss plans for first PRIME launch with full-scale model of flight vehicle in foreground. Working on test model of PRIME interstage adapter in background is M. E. Noack, installation mechanic in Dept. 756-9.

Atlas SLV-3 to Boost Re-entry Spacecraft

Ability of a "lifting body" to return from orbit and "fly" with precision to a preselected location will be demonstrated in November when Atlas SLV-3 No. 7001 carries the first PRIME vehicle into space from Vandenberg AFB for a flight down the Western Test Range.

A PRIME ("precision recovery including maneuvering entry") full-scale model and an interstage adapter, separation system and shroud are now being integrated and tested by Convair division at its Kearny Mesa factory and Pt. Loma Test Site.

Convair built the interstage adapter and subcontracted construction of the shroud. The SLV-3 booster for the first launch is in final assembly in the factory.

PRIME is a project within the START ("spacecraft technology and advanced re-entry test") project and is directed by the Space Systems Division of the Air Force Systems Command.

Four of the 890-pound PRIME SV-5D "maneuverable spacecraft" vehicles are to be launched by

(Continued on Page 2)

SLV-3 For Gemini Flown to Cape

Atlas SLV-3 No. 5305, scheduled to boost an Agena target vehicle into space July 18 for docking use by NASA's Gemini 10 astronauts Lt. Cdr. John Young and Capt. Michael Collins, was turned over to the Air Force in special ceremonies this month at Convair division's Kearny Mesa factory and has been shipped by air to Cape Kennedy.

Final assembly and checkout of the Gemini target booster was reduced from the original schedule of 32 days to 13 days by factory personnel on two shifts working overtime and on weekends and the Memorial Day holiday.

Robert G. Daly, manufacturing operations manager, said the 5305 vehicle was one of the "cleanest birds" ever delivered by the division with all flight hardware aboard for complete checkout at the factory. This eliminated necessity for additional modification or addition of late arriving hardware at the Eastern Test Range.

Division personnel who worked on the booster were commended for an "outstanding job" at the "sell-off" ceremonies by Grant L. Hansen, vice president-launch vehicle programs, Col. James R. Ourand, Defense Contracts Administration Services (DCAS) plant representative, and Capt. David Conkling, Air Force Space Systems Division program office representative.

John F. Harrison, supervisor of the Air Force support section of the DCAS plant representative's office, signed DD Form 250 to accept the Atlas for the Air Force.

Harrison has "bought" more than 350 Convair-built missiles and launch vehicles during the nine years he has been assigned to the local Air Force and DCAS plant representative's office. He has been a government employe 25 years and supervisor of the Air Force support section the last six years.

Lee Ely, chief of Atlas final assembly, said "quick reaction operation" techniques were put into effect to prepare SLV-3 No. 5305 for delivery after mission failure of SLV-3 No. 5303 and designation of SLV-3 No. 5304, the "back-up" vehicle at the Cape, for launch of the augmented target docking adapter for the Gemini 9 mission.

"Everyone pitched in — the engineering team, the factory team, the associated contractors and the customer representatives," he said. "Lines of communication were shortened. There was excellent cooperation among all concerned."

Modification was directed by Ely and P. W. Donaldson with final checkout under the direction of R. S. Vernor, Joseph Moore and C. C. Baker. W. G. Schultz was factory test conductor, Frank Hinton was in charge of quality control and George Eslanger and Walter Lippert were factory coordination representatives.

A special team under direction of W. F. McGrath loaded the booster into a C-133 aircraft at Miramar NAS for the flight to the Cape.

Electronics Mgt. Club To Install Officers

R. W. Perrin will be installed as president of Electronics-San Diego Management Club at a meeting this evening at the Bronze Room, La Mesa.

Other new officers are E. R. Peters, first vice president; R. F. Martin, second vice president; V. W. Finley, secretary; and W. C. Binder, treasurer. C. K. Keach was elected to a one-year term and Si Spalter to a three-year term on the board of control.

William Brotherton, executive manager of the San Diego Convention and Visitors Bureau, will be guest speaker. Social hour is at 6 p.m., dinner at 7.

'Do Good Work' Expansion Includes Charting Progress

Convair division's nationally known "Do Good Work" program will be further expanded next month for greater participation by all employes and recognition of goal achievements by each department and functions within departments.

"We believe our 'Do Good Work' program to be the best in the industry," Jack L. Bowers, Convair division general manager, said. "With expansion and intensification of the program at department level, it will be even more exemplary. Our goal is to have 100% employe support, endorsement and more important—personal involvement in the program."

W. E. Magnuson, chairman of the "Do Good Work" program, said "management by objective" techniques are to be used by all departments under the expanded program.

Personnel in each function or section of their department will establish a minimum of three realistic and meaningful goals, then chart progress toward the goals on wall charts.

Goals established may be related to any facet of department activity and cover such items as budgets, schedules, quality trends, cost reduction, value engineering, employe suggestions, attendance or tardiness, housekeeping, office supplies, management techniques, work measurement, training, security, safety or any activity peculiar or unique to the department.

As a test prior to implementation of the new program, personnel in quality assurance engineering Dept. 141-3 under supervision of William G. Lux the first of this year established as departmental goals increasing the number of employe suggestions and decreasing employe absenteeism. Charts were posted for reference and as constant reminders.

The 36 employes in the department last year submitted 37 suggestions and set a goal of double that number or 74 for this year. Thirty were submitted by the end of May.

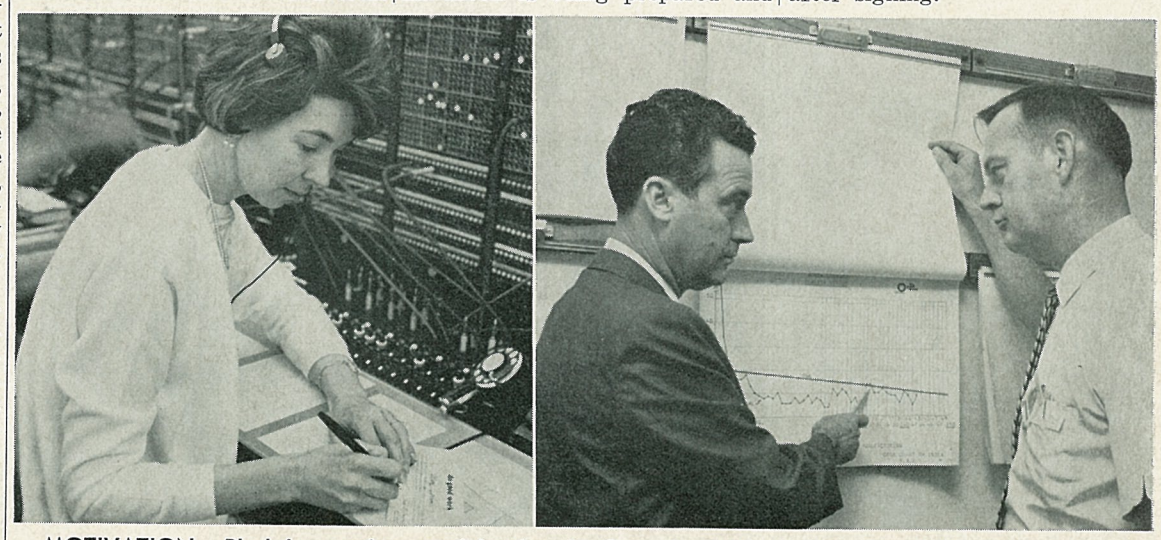
Last year the department averaged 125 hours a month absenteeism and a goal of 75 hours per month was set for this year. Although absenteeism jumped to 225 hours in February due to the flu epidemic, average for the first five months was 111 hours and last month's total dropped to 25.

"This indicates you can better achieve improvement if you have a definite goal to work toward," Lux said.

Each department will have a banner for display by the function judged to have done the best job during the previous goal period in helping the department work toward its objectives.

A "Do Good Work" program handbook is being prepared and an information package assembled for each employe. A banner will fly from each of the division's flagpoles.

Each employe will be asked to sign a pledge attesting to his active participation in the program and indicating he will "strive to attain the goals and achievements of the program" to the best of his ability. Each will receive a gold participation pin after signing.



MOTIVATION—Pledging active participation in Convair division's "Do Good Work" program (at left) is Mary Jerran, switchboard leadman at Kearny Mesa. At right, L. I. Medlock, director of reliability control, and Joseph M. Bowers, Dept. 140-1, look over sample of chart to be used in plotting departmental goals.

Mgt. Club Will Hold Picnic at CRA Park

A basket picnic will be held July 24 for Convair Management Club members and families, 11 a.m. to 6 p.m. at CRA Missile Park, Kearny Mesa.

Sponsored by operations departments under John Hopman and Frank Blair, a variety of games are promised along with free ice cream and pop for the children. Families should bring their own picnic lunch.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between June 15 and June 30.

Thirty-five-year: Dept. 561-0, T. M. Hemphill.

Thirty-year: Dept. 250-3, J. A. Bender; Dept. 400-1, L. E. Weber.

Twenty-five-year: Dept. 019-0, L. W. Stamper; Dept. 041-0, E. D. Booth, A. D'Ercole, R. F. Yturralde; Dept. 102-0, G. E. Putness; Dept. 141-0, G. R. Bailey; Dept. 143-4, H. L. Brown; Dept. 170-9, J. R. Nelson Jr.; Dept. 250-2, L, Brown; Dept. 250-3, E. M. Franzel; Dept. 250-5, S. K. Saunders; Dept. 401-5, C. E. Cardo; Dept. 454-0, B. J. Smigielski; Dept. 566-1, J. J. Arnieri; Dept. 581-3, W. F. Chana; Dept. 780-1, W. U. Gatterman; Dept. 780-2, H. A. Rasmussen; Dept. 963-4, D. H. Gerbaz; Dept. 963-8, F. L. Cook; Dept. 972-0, C. O. Byarlay, L. J. Miller; Dept. 987-0, W. L. McDougal.

Twenty-year: Dept. 001-0, L. V. Malody; Dept. 103-1, S. W. Kerr; Dept. 143-1, M. R. Wilson; Dept. 511-1, E. H. Oldenburg, M. P. Stringfield; Dept. 756-0, R. G. Carman; Dept. 816-4, R. O. Pattillo; Dept. 972-0, M. H. Davis Jr.

Fifteen-year: Dept. 002-0, E. O. Bracamonte; Dept. 015-0, D. J. Galloway; Dept. 041-0, W. E. Jaynes; Dept. 130-1, J .J. Anzalone, J. E. Lindblade, B. L. Martin; Dept. 195-1, R. L. Swisher; Dept. 250-1, D. J. Buck, G. W. Schwenke; Dept. 250-3, A. H. Juhls; Dept. 250-6, H. L. Baker; Dept. 403-1, W. P. Connor; Dept. 420-7, T. S. Potts Jr.; Dept. 420-9, E. F. Roberson; Dept. 454-0, P. T. Kaneyuki; Dept. 507-0, R. E. Attlesey; Dept. 551-2, A. A. Farmer Jr.; Dept. 587-1, W. W. Johnstone Jr.; Dept. 592-0, E. E. Keller, B. F. North; Dept. 756-0, J. A. George; Dept. 818-1, J. A. Cleghorn; Dept. 833-2, C. J. Ledbetter; Dept. 836-1, A. C. Silva; Dept. 951-3, W. E. Knowles; Dept. 965-1, H. Cherin; Dept. 987-0, R. C. Esparza.

Ten-year: Dept. 015-0, R. R. Clarke, S. C. Larkin; Dept. 019-0, B. F. Armas; Dept. 041-0, N. L. Sherman; Dept. 058-0, F. Pratt; Dept. 059-0, M. F. Moseley; Dept. 059-3, F. D. Bouldin; Dept. 110-2, G. R. Vetter; Dept. 130-1, H. S. Hawkins, C. H. Saunders; Dept. 142-1, L. E. Boucher, J. Bowers, C. W. Donahoo, R. L. Forbes, J. W. Quijada; Dept. 143-2, R. L. Mueller, M. J. Sorg; Dept. 143-4, J. J. Campbell, L. I. Gordon; Dept. 143-5, C. J. Ohiser; Dept. 145-1, T. J. Condon, W. L. Johnston; Dept. 146-1, J. A. DeShazo; Dept. 149-2, C. E. Repine; Dept. 149-7, H. C. French; Dept. 170-1, C. C. Hays, C. G. Lee; Dept. 193-3, M. E. Sydenham; Dept. 196-0, C. E. Welsh.

Dept. 250-0, C. W. Burnett; Dept. 250-1, A. E. Strawser; Dept. 250-2, R. F. Grimshaw; Dept. 250-5, S. J. Koziel-ski; Dept. 250-6, H. L. Abbott; Dept. 300-2, R. Chart; Dept. 300-3, W. M. Patch; Dept. 300-5, R. J. Moore; Dept. 450-0, J. Forbes; Dept. 491-0, D. J. Gorham; Dept. 507-0, F. E. Heinzelman Jr., K. D. Millard; Dept. 524-0, D. E. Gilbert; Dept. 531-2, R. R. Romanowich; Dept. 551-1, J. M. Anderson; Dept. 572-3, J. T. Moran; Dept. 574-3, A. A. Imdieke; Dept. 575-0, P. A. Canegaly; Dept. 583-1, K. R. Hinman, S. T. Piszkin Jr.; Dept. 583-2, E. M. Slick; Dept. 584-1, W. F. Helmich; Dept. 589-1, A. Van Duren; Dept. 591-0, N. J. Caesar Jr.; Dept. 595-0, M. W. Bauman, D. A. Buck, J. D. Neilson, W. C. Tonelli.

Dept. 731-0, E. R. Muklevicz; Dept. 732-0, E. G. White; Dept. 733-0, A. H. Mundell; Dept. 756-0, F. V. Brown, R. M. Roark, L. Warner; Dept. 780-1, E. D. Miller; Dept. 780-2, S. Poulakidas; Dept. 780-3, J. M. Robertson; Dept. 817-0, L. A. Rubida; Dept. 832-3, M. L. Larsen; Dept. 834-1, P. R. Calvert; Dept. 845-4, M. C. Nugent; Dept. 847-1, H. W. Sass; Dept. 950-7, J. G. Kalogeris; Dept. 951-8, E. B. Broadbent Jr.; Dept. 959-0, I. C. Dunn; Dept. 962-3, J. L. Jurek; Dept. 963-3, J. Galian Jr.; Dept. 963-6, B. Shiba; Dept. 964-2, H. M. Williams.

Dept. 966-3, G. C. Wilson; Dept. 966-4, F. A. Derango; Dept. 966-5, L. G. Wilson; Dept. 966-9, C. J. Buman; Dept. 967-2, W. F. Crocker; Dept. 969-3, G. L. Shain; Dept. 970-1, W. E. Crow; Dept. 971-5, W. W. Davies Jr.; Dept. 976-1, J. W. Dey; Dept. 978-1, J. E. Frink; Dept. 978-3, S. W. Ashcraft; Dept. 979-1, L. J. Leitner; Dept. 979-3, J. A. Smith, G. I. Williamson; Dept. 979-4, W. C. MacDaniel; Dept. 985-1, D. T. Barber, R. E. Burns, V. H. Williams; Dept. 985-4, K. W. Mallison; Dept. 988-4, D. W. Mayberry.

STROMBERG-CARLSON

Fifteen-year: Dept. 8411, G. Elmore.

Ten-year: Dept. 8510, E. A. Bates; Dept. 8530, R. S. Stoner; Dept. 8623, E. N. DeJonge.

ELECTRONICS

Fifteen-year: Dept. 40720, W. J. Squance; Dept. 40730, E. L. Vetter; Dept. 40750, R. L. Sumpter; Dept. 65740, J. E. Critchett; Dept. 68540, J. A. Tucker.

Ten-year: Dept. 40720, L. Huntsman; Dept. 40750, J. L. McIntosh; Dept. 63760, E. Smith; Dept. 65740, R. Villanueva; Dept. 68540, S. A. Combs, J. A. Moody, E. Swindell; Dept. 66830, M. Frank.

Births

CONVAIR

ADAMS — Daughter, Anne Jeanine, 6 lbs., 3 oz., born June 7 to Mr. and Mrs. Allen A. Adams, Dept. 126-0.

KORTY—Daughter, Renee Christine, 7 lbs., 8 oz., born May 28 to Mr. and Mrs. Charles H. Korty, Dept. 595-0.

WEBER—Son, Jeffery Scott, 8 lbs., 6 oz., born June 10 to Mr. and Mrs. Jack D. Weber, Dept. 585-3.

Awards

CONVAIR

Employe Suggestion awards approved for the week ending June 3.

Dept. 015, S. Brown (two awards), L. W. Tracy; Dept. 024, W. M. Bender, R. E. Cloud, E. E. Yturralde; Dept. 031, A. V. Elo; Dept. 125, T. C. Mitchell; Dept. 143, A. R. Townsend; Dept. 149, V. Samuelson, J. W. Waller, A. R. Zullo; Dept. 150, B. M. Buckner; Dept. 191, W. McColley; Dept. 194, F. S. Mascari; Dept. 780, B. C. Anthony; Dept. 845, M. G. Collier; Dept. 954, E. N. Bailor; Dept. 964, E. V. Laird; Dept. 969, N. P. Dellagatta; Dept. 974, O. P. Ray; Dept. 979, C. F. Jacobs.

Invention Disclosures

CONVAIR

ADKINSON—A. D., Dept. 493-0. Encapsulation of Electronic Piece-Parts.

ARAIZA—F. J., V. R. BRYANT, and N. T. FREDERICK, Dept. 572-2. Simple and Economical Check Valves.

BUSH—R. D., Dept. 491-0. Grommet Installation Tool.

HEMPHILL—T. M., Dept. 561-0. Vertical Reference Sensor-Indicator.

PICO—L. C. Jr., 951-0. Gyroscope Without High Speed Precision Bearings.

In-Plant Training

ORIENTATION

NEW EMPLOYES—Educational services staff. Lindbergh Field, ext. 491. Bldg. 14 auditorium, Tuesday, July 19, 8 a.m. Kearny Mesa, ext. 1931, Bldg. 17, Room 7, Monday, July 11, 8 a.m.

PROFESSIONAL/TECHNICAL

VALUE ENGINEERING WORKSHOP—Everett Lindem, ext. 1931 KM. June 27-July 11. Room 11, Bldg. 33, Kearny Mesa. Enrollment closed.

NEW DISCREPANCY REPORTING AND CORRECTIVE ACTION—Hal Rubin, ext. 1931 KM. June 13-30. 1½ hours. Lindbergh Field classes, Room 8, Bldg. 14. Plant. 19 classes, Conference Room, Bldg. 3. Kearny Mesa classes, Room 7, Bldg. 17.

RELIABLE ELECTRICAL CONNECTIONS—Educational services staff. For further information and quota call ext. 1931, Kearny Mesa.

AFTER HOURS CLASSES
San Diego Junior College

BLUEPRINT READING—Hal Rubin, ext. 1931 KM. 40 hrs. (8 weeks.) Mondays and Wednesdays, 4-6:30 p.m. Lindbergh Field Bldg. 14, Room 8. $1 fee required by City College. For further information call Wayne Turner, ext. 491, LF; Hal Rubin, ext. 1931, KM.

FALL SEMESTER—What subjects are you interested in? Previous on-site courses have included math for electronics, technical writing, introduction to digital computers, computer logic and circuitry, quality control and reliability, technical math, blueprint reading, numerical control, tool design, electronics, supervision. To aid in advance planning, please send AVO to Dick Forrest, zone 130-30, indicating courses you are interested in.

PROGRAMMED SELF-STUDY—A limited number of programmed tests in the subject fields of mathematics, statistics, probability, electricity, electronics, slide rule, English review, computer language and others are available in the educational services offices, Room 4, Bldg. 17, Kearny Mesa. These may be checked out for home study. Office hours 8 a.m.-5 p.m., ext. 1931 KM.

Retirements

CONVAIR

ALLISON—Lloyd S., Dept. 015-0. Seniority date Dec. 21, 1950, retired June 3.

BROWN—Henry C., Dept. 833-1. Seniority date Aug. 9, 1954, retired May 27.

DOUGHERTY—H. M., Dept. 819. Seniority date June 26, 1956, retired May 22.

HANLEY—James, Dept. 150-0. Seniority date Aug. 23, 1960, retired May 30.

KICK—Gerald J., Dept. 400-3. Seniority date Oct. 9, 1935, retired June 3.

LEES—Nelda, Dept. 170-9. Seniority date Feb. 23, 1956, retired May 31.

MAC NABB—Bryon G., Dept. 979-0. Seniority date Feb. 14, 1955, retired May 30.

WRIGHT—Arthur W., Dept. 732-0. Seniority date April 3, 1956, retired May 31.

Dynamics Men Head Instrument Society

John T. Bauer of General Atomic division has been elected president and Harry N. Norton of Convair, Dept. 963-9, vice president of the San Diego section of the Instrument Society of America.

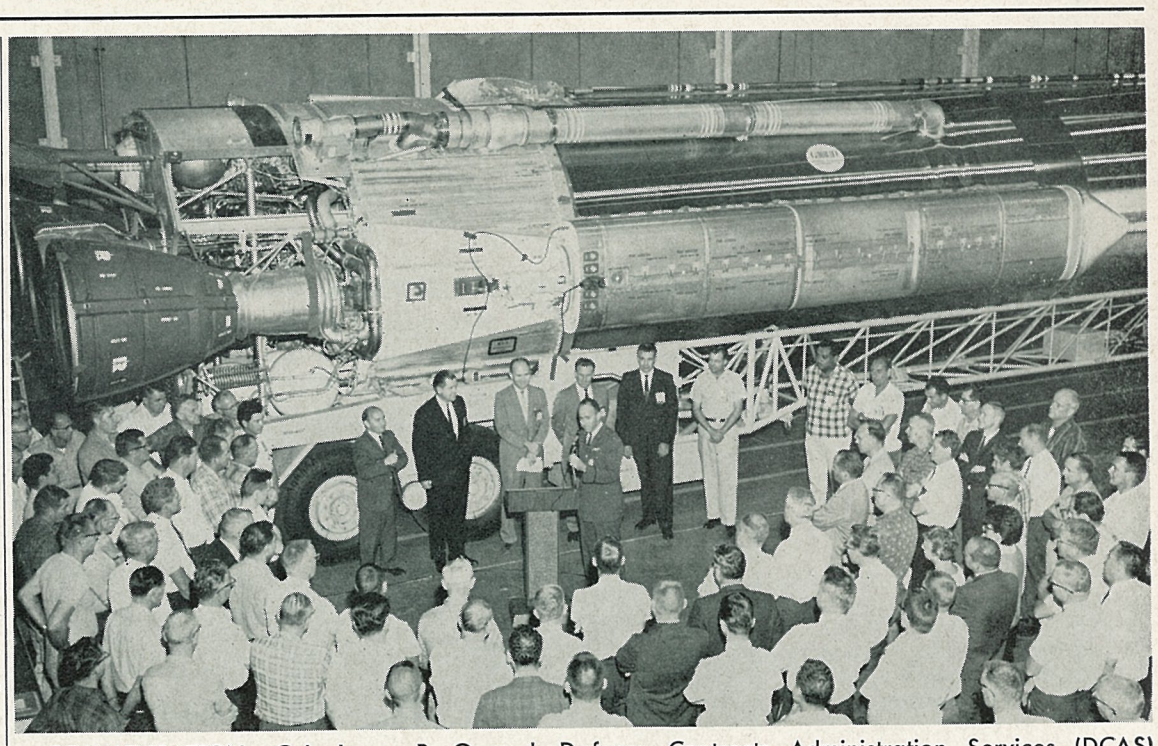
Al Torrible of Convair Dept. 963-8 continues another year on the board as member-at-large and has been appointed program committee chairman. Darlo Clemens of Convair Dept. 142-4 has been appointed membership committee chairman.

General Dynamics News

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Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.



COMMENDATION—Col. James R. Ourand, Defense Contracts Administration Services (DCAS) plant representative (at podium), commends Convair "team" at special "sell-off" ceremonies for Atlas SLV-3 No. 5305. Other officials, from left, are Robert G. Daly, factory operations manager; Grant L. Hansen, vice president-launch vehicle programs; John Harrison, supervisor of Air Force support section of DCAS; James Garcia, chief of the operations branch of DCAS; Marvin Conklin, DCAS quality assurance representative; and Capt. David Conkling, Air Force Space Systems Division.

Manned Entry Study Begun For Langley

(Continued from Page 1)

ment of environmental effects and evaluation of operational problems peculiar to PLAME application.

Two 16,000-pound landing vehicle concepts are being studied—one a 25-foot-long conical configuration and one a 43-foot-long lifting body configuration with stub wings.

Assisting Coward and Brevig with the studies are W. H. Whitley on power plant installation analysis and W. G. Ravenscroft on power plant installation detail and vehicle configuration analysis. All are assigned to the advanced launch and re-entry vehicles group at Kearny Mesa.

Both combination parachute and lift engine descent and vertical landing techniques without parachute assist are being considered. Detailed aerodynamic studies may be made under future NASA task orders.

Coward said vertical takeoff and landing (VTOL) flight experiments to date in this country and Europe indicate that hover time, hovering control power requirements and thrust-weight ratios will be reasonable for PLAME application.

'Funny Girl' Seats Available at $3.75

A limited number of $3.75 reduced-price tickets for choice balcony seats are on sale for General Dynamics families for the 8:30 p.m. July 28 presentation of "Funny Girl" at Civic Theatre.

Tickets may be purchased at Convair and Stromberg-Carlson employe services outlets, the CRA Clubhouse and the Bldg. 51 engineering mailroom at Lindbergh Field.

LIGHTERS ON SALE

Convair division monogrammed Zippo lighters with lifetime guarantee are on sale for $3 each at division employe services outlets and the Bldg. 51 engineering mailroom at Lindbergh Field.

Atlas Scheduled to Boost Re-entry Vehicle Into Space

(Continued from Page 1)

SLV-3s from PALC 1, Pad 2, at Vandenberg during the next year and, after re-entry flights of about 3,000 miles, will descend under parachute from 45,000 feet near Kwajalein Atoll in the Marshall Islands. They are to be recovered in the air by C-130 aircraft or from the ocean by a recovery ship.

The seven-foot-long PRIME vehicles, built by Martin Co., are wingless, V-shaped air-foil craft with a near-flat bottom and vertical tail fins. The entire craft is designed to provide aerodynamic lift and glide capabilities normally achieved with winged aircraft.

Six nitrogen thrust jets will be used for attitude control outside the atmosphere. A raised portion at the rear will aid in maintaining trim and lift in the atmosphere. Two movable flaps under the tail will provide pitch and roll control.

Each of the vehicles will house guidance and control, instrumentation and telemetry, communications and tracking, electrical and environmental control systems and will be covered with heat shielding material.

SLV-3s for the flights will relay commands to the re-entry vehicle to start its programmer and reaction control and attitude reference systems before separation occurs between five and six minutes in flight. The Atlas then will "back off" by firing retrorockets.

Convair telemetry trailers will assist range telemetry stations and downrange instrumentation aircraft and tracking ships in gathering data for post-flight analysis at Kearny Mesa. The terminal guidance control center will be on Roi Namur Island.

H. M. Bonesteel of Dept. 950-4 is PRIME program manager for Convair under J. S. Berggren, Atlas SLV-3 manager. H. L. Obertreis is ground systems, booster vehicle and launch operations coordinator and James L. Minos is in charge of structural design activities and testing.

James Griffin of Dept. 970-0 is in charge of launch vehicle final assembly and Robert Carman of Dept. 756-0 of factory engineering test support.

PRIME project tests being conducted at Pt. Loma include matchmate tests of the project hardware, structural tests for the adapter section, re-entry vehicle release systems tests and testing of the jettison system for the fairing.

The Air Force's START project, under the direction of Col. Curtis L. Scoville, began in 1963 with six ASSET test beds being launched by Thor-Delta vehicles down the Eastern Test Range. The PRIME project is augmented by a PILOT project in which manned "lifting body" vehicles will be dropped from B-52 aircraft for cross-range glides through the atmosphere.

Each of the three START projects will provide information for use in design of re-entry vehicles of the future.

CANADAIR RECEIVES C-5A SUBCONTRACT

Lockheed-Georgia Co. has announced award of a contract in excess of $10 million to Canadair Limited, Montreal, for C-5A main landing gear fairings and doors.

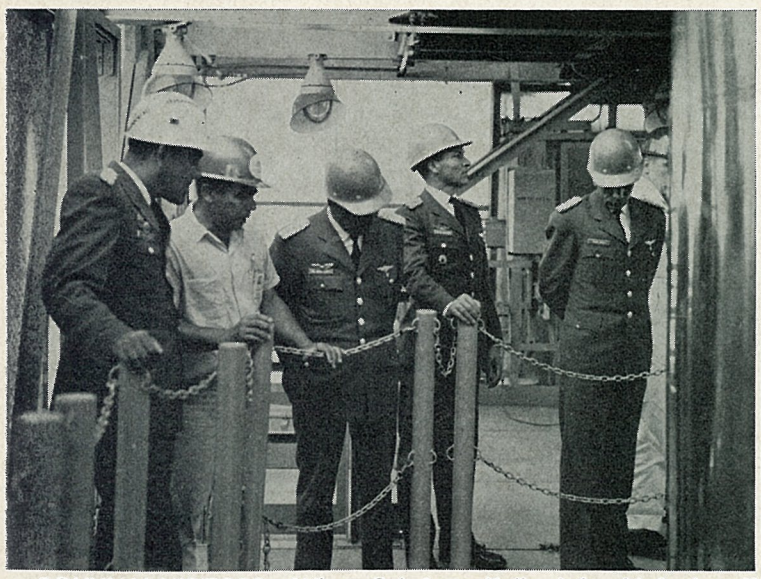
The 69 foot long fairing, or pods, that Canadair will manufacture will house the airplane's 24 main landing gear wheels, 12 on each side of the fuselage.

The first of 58 C-5A's ordered for the Military Air Lift Command will be completed in February, 1968. Developed under the direction of the Air Force Systems Command, the airplane will make its first flight in June, 1968.

The Department of Defense holds an option for 57 additional C-5A transports.



FOR CHARITY—Employes' Con-Trib-Club checks were handed out recently to area charities at Eastern Test Range. At left, Carolyn Murdock, representing Con-Trib, hands $400 check to Mrs. Ann Dubros of Brevard Day Care Council. In center, Ken Newton, president of United Fund Brevard County, accepts $2,500 toward total pledge of $10,000 from Q. E. Gilmore. At right: Frank Waitkus presents $1,500 check to Dick Drake of March of Dimes on behalf of ETR Con-Trib members.



BOLIVIAN VISITORS—When Col. Leon Kolle, left, chief of staff of the Bolivian Air Force, and members of his staff recently visited Vandenberg AFB, John J. Ollivarria, a Convair launch services mechanic at ABRES A site, second from left, served as interpreter. Don L. Fagan, base manager, has received a letter from U.S. Air Force Assistant Chief of Staff for Protocol expressing appreciation for Ollivarria's assistance.

Convair 'Kicks Off' Expanded Technology Reporting System

Convair division "kicked off" an expanded new technology reporting program for NASA June 17 with two 90-minute briefings for selected personnel in the Bldg. 2 presentation room at Kearny Mesa.

A New Technology staff has been established by the division in Dept. 964-0 with three members—Hugo F. Mohrlock, Charles F. McCabe and Charles Kull—to intensify the division's efforts in reporting new technological innovations, scientific knowledge and new technical skills developed under NASA contracts so such information can be made available quickly for non-aerospace uses throughout industry.

The office is on the second floor of Bldg. 1 at Kearny Mesa, ext. 1823. Under a contract for approximately $100,000 from NASA's Lewis Research Center for the experimental program, funds are available for reimbursement of "direct charge" departments for time devoted by personnel in new technology reporting.

Mohrlock, previously responsible for NASA new technology reporting under Centaur contracts while assigned to the division's patent office, said a two-page "Report of New Technology" form is available to assist departments in initiating reports.

The staff will work closely with division and Corporate patent offices and NASA and plans to establish close working relationships with other General Dynamics divisions for maximum identification, evaluation, reporting and utilization of new technology.

James Burnett of NASA-Lewis, key speaker at the "kick off" briefings, described NASA's new technology program in detail and cited numerous examples of how technology recently developed under NASA contracts is now being used by non-defense industries throughout the country.

Grant L. Hansen, Convair vice president for launch vehicle programs, introduced Burnett and explained briefly what the new technology utilization program means to NASA, General Dynamics and the United States. F. X. Marshall, manager of configuration management and documentation for Convair, described the division's new organizational procedures for implementation of the expanded program.

Representatives of other General Dynamics divisions in the San Diego area were present.

Burnett described and distributed examples of single-page NASA Tech Briefs now being widely distributed to industrial firms and educational institutions that might utilize the information in each.

NASA Tech Briefs describe in a few simple sentences and with illustrations the problem, the solution and how it's done. Additional notes list known possible uses, the name and address of the contractor or NASA office that can provide additional information and the patent status, if any, of the innovation.

In some cases, NASA is scheduling briefings, such as one recently for the petroleum industry, in which industry leaders from throughout the country are briefed on recent developments that may be of immediate value to that industry.

NASA also has established eight regional dissemination centers at major universities through which industrial firms may secure copies of all unclassified NASA reports and other documents upon request.

The centers are supported one-third by NASA, one-third by the university and one-third by industry "members." "The fee paying members read like a blue book of American industry," Burnett said.

Among new developments described by Burnett as examples were light-beam communications systems, modified spray guns, boltless metal attachment, new cobalt alloys, an optical device for measuring torque and plastic heart pumps with pneumatic control systems.

Dr. Richard Brenneman, technical utilization officer for NASA's Western Operations Office was present for the briefings.

One of the NASA Tech Briefs distributed described a Convair division-developed shrinkable sleeve that eliminates shielding gap in radio frequency cable.

Exhibits describing the NASA new technology program and use of such technology by industry are on display for a two-week period in the Kearny Mesa cafeteria.

All major NASA contracts now contain a new technology clause requiring the contractor to search for and report new technology resulting from work under the contract.

Engineering Society Elects Two GD Men

Two Convair division employes were installed June 25 as officers of the San Diego chapter, California Society of Professional Engineers. They are A. S. Keevil of Dept. 965-1, vice president, and W. J. Sevier of Dept. 532-1, treasurer.

E. A. Hamilton of Dept. 553-2 was outgoing president and J. R. Hilliard of Dept. 578-3 outgoing vice president.

GD REPRESENTATIVE AT OSLO MEETING

Thijs de Haas of Electronics division, Rochester, attended the XI Plenary Session of the International Radio Consultative Committee of the International Telecommunication Union this month in Oslo, Norway. He is a member of the U. S. delegation with special interest in data communications. Sixty nations participated.

Quality Control Engineer Earns National ASQC Honor

William F. Rice, a senior quality control engineer in Convair division's reliability control data center Dept. 146-3, received the American Society of Quality Control's Aircraft and Missile Division Achievement Award at the society's annual meeting this month in New York.

The award, one of only two given annually, was presented to Rice "in appreciation for exceptional contributions to the profession of quality control."

Rice received the honor for his efforts in spearheading establishment of a 21-course quality control and reliability education curriculum in the San Diego Junior Colleges leading to the Associate in Science degree. Evening students taking a 27-unit course within the curriculum may qualify for a "Certificate in Proficiency."

Similar educational programs, based on the San Diego curriculum, are now being established in colleges and universities throughout the country.

Rice now serves as chairman of a 28-member professional Advisory Council for the local educational program and as one of 18 quality control and reliability instructors on the college faculty.

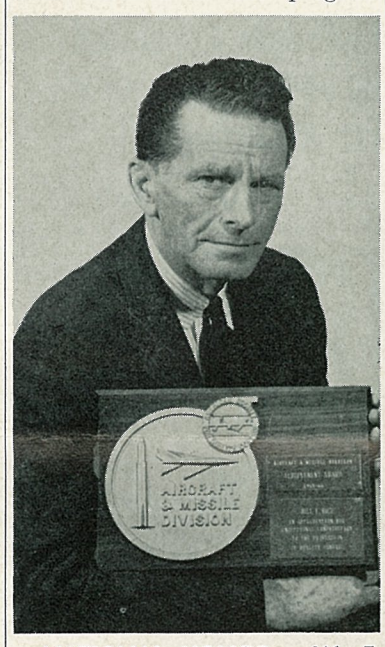
More than 700 students have been enrolled in the program since its inception 4½ years ago, completing 2,484 student semesters or 134,136 hours of classroom study.

Four Associate in Science degrees and 116 Certificates of Proficiency have been awarded to students completing requirements. An enrollment of about 200 students is expected for the next school year and eight new courses have been added to the curriculum.

Other members of the Advisory Council include L. I. Medlock, C. A. Miller, D. C. Ryle, S. S. Smith, Dr. G. L. Stiehl, A. J. Woodington and E. R. Zevin of Convair division and I. L. Kemper of Electronics-San Diego.

Faculty members from Convair division, in addition to Rice, are W. A. Dershem, P. E. Gelles, S. W. Gill, F. S. Graham, W. T. Hollar, G. D. Koulaxizes, W. Olson, J. H. Rusk, R. W. Shaffer and J. Q. A. Wickham.

Sterling Smith of Dept. 143-2 was appointed national chairman of the ASQC Aircraft and Missile Division for the 1966-67 year.



NATIONAL HONOR — W. F. Rice of Convair division received national Achievement Award from American Society of Quality Control at recent annual meeting in New York.

Roger Brown Gets Wage-Salary Post

Roger W. Brown, chief of budgets and project task control for Convair division since 1963, has been appointed manager of wage and salary administration for the division. (No relation to Roger W. Brown, Pomona division industrial relations director.)



Roger W. Brown

He replaces Howard W. Carrell who has been promoted to manager of compensation and personnel development for the Pomona division.

Brown, who joined Convair as an administrative accountant in 1961, served as chief of cost control for Convair at the Eastern Test Range in 1962 and 1963 and previously had served as an accounting assistant supervisor for the division.

A native of Oakland, Brown received his BA in accounting from the University of California at Berkeley in 1950 after completing a tour of duty in the Navy. Before joining Convair, he held several positions including manager of administrative services and assistant to the manager of accounting of the Kawneer Co. of Niles, Mich, from 1950 to 1959.

Two Chemists Earn Metal Plating Award

E. W. Turns and Bob Krienke, Fort Worth division chemists, have won the Precious Metal Plating Award from American Electroplaters Society.

The two won the honor by co-authoring a paper on "Alloy electro-deposition of silver matrix solid film lubricant." The paper was previously presented to the society and subsequently published in the society's magazine.

Both received the award at the society's annual convention in Miami June 20.

'Khartoum' Tickets On Sale at $1.80

General Dynamics employes now have available a limited number of reserved seat, 20 per cent discount tickets for the 8 p.m. July 10 showing of 'Khartoum," starring Charlton Heston and Laurence Olivier at Center Theater.

Tickets are $1.80 each and may be obtained at CRA Clubhouse, Convair and Stromberg-Carlson employe services outlets and the Bldg. 51 engineering mailroom at Lindbergh Field.

Tower For Atlas Static Testing 'Stretched' to Fit New SLV-3s

The Atlas hydropneumatic test tower at Convair's Kearny Mesa plant, used for static testing of Atlas launch vehicles, has been lengthened 16 feet to accommodate the late SLV-3A and SLV-3C configurations.

W. J. Connelly, Convair field engineer, said modification design was done by plant engineering Dept. 250-2 with Carl Gourley as project engineer and Robert Grimshaw as field engineer. Asbury Steel Co. was contractor.

Connelly said the top section of the tower was raised by crane, a new 16-foot structural steel section lifted into place and the top replaced. The vehicle stretch mechanism and working platforms inside the tower and the vehicle raising and lowering mechanism also have been modified in the project, dubbed "Operation Stretch."

The new SLV-3C launch vehicle will be 51 inches longer than the conventional Atlas booster and will carry an additional 21,000 pounds of usable propellant for a 3,000-pound payload capacity increase.

Hydrostatic testing of the first SLV-3C flight vehicle in the test tower is scheduled in August. The first SLV-3C will be delivered in January for later use in the Atlas-Centaur 13 flight.

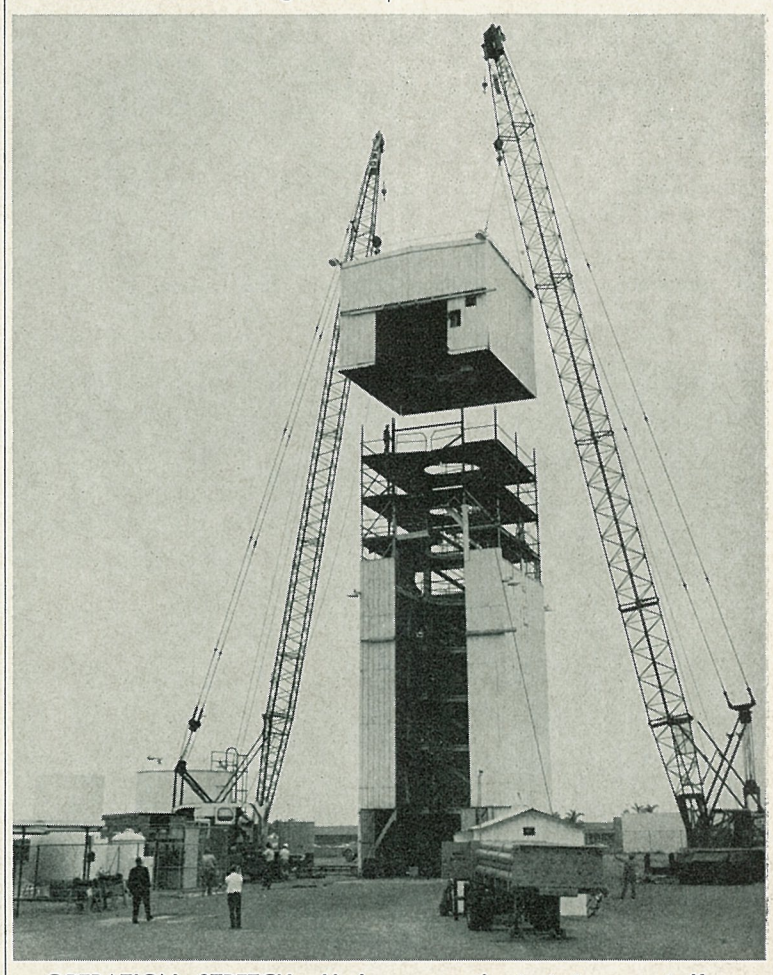
The new SLV-3A vehicles, for use with Agena upper stages, will have a 117-inch tank length increase for an additional 48,000 pounds of usable propellant and a 250-pound payload increase for lunar missions. The first SLV-3A is to be delivered in May, 1967.

Electronics Begins New Army Contract

Production is under way on more than 700 radio teletypewriter MODEMS for the U. S. Army under a letter contract for $2,125,000 with Electronics division, Rochester.

MODEM (MD-522/GRC) is a transistorized teletype plus voice modulator / demodulator (MODEM).

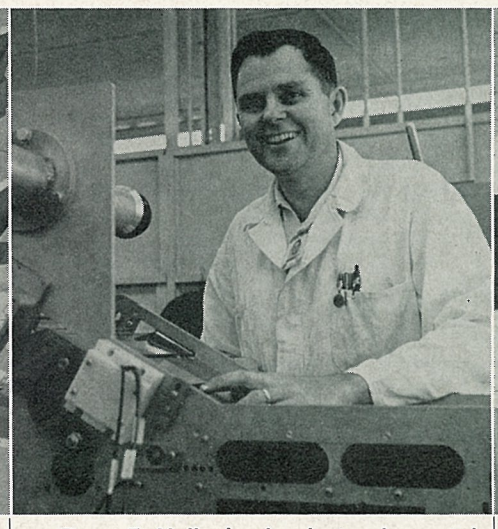
It is designed to meet high stability requirements essential to tactical or combat radio communications and is built to meet the rigors of day-to-day field combat including heat, cold, dust, shock, vibration and immersion.



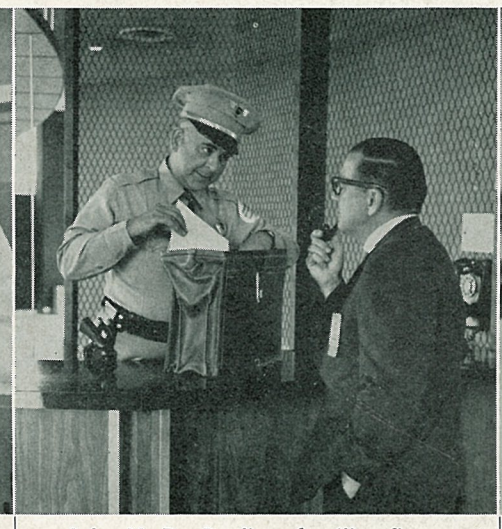
OPERATION STRETCH—Hydropneumatic test tower at Kearny Mesa plant gets height increase to accomodate "new breed" of Atlas booster vehicles. Top of tower was removed, new structural steel section lifted into place and top of tower replaced.



Fred Aiken has one Convair installation practically to himself as the only man now based at Convair Tool Stores No. 99 on Frontier St. Aiken in tool control (Dept. 400-6) issues large F-102/106 tools and tool gauges for spare parts production. A retired Navy man with 22 years service, Aiken worked as civilian storekeeper at the Navy Supply Depot for several years before joining Convair in 1952. He was a guard at the former Plant 2 (now AF Plant 19) during the guided missile program. When that program was moved to Pomona as a separate division, he transferred to tool control. He continued to work at Plant 19 until a year ago when he was shifted to the Frontier St. location. He came to San Diego in 1924.



Dean E. Hollenbeck, electronics metal bench worker in Stromberg-Carlson Data Products' fabrication, makes adjustment on an engineering model of a hard copy processor being developed as an option for the S-C 4060 Microfilm Printer. He moved to S-C in the fall of 1964 from Electronics - San Diego fabrication where he had worked for four years. He formerly had been with Convair division as a pattern maker. A native of Kansas, he moved to San Diego in 1948 and was the first draftee called up in San Diego in 1950 at the beginning of the Korean conflict. He makes his home in Ocean Beach with his wife, Joyce, and two sons, Keith, 10, and Don, 7. Most of his spare time is spent in his woodworking shop set up in his garage.



John V. De Pauli, a familiar figure at Kearny Mesa Bldg. 2 guard desk, will compete 10 years as a division guard in September. De Pauli estimates he knows 90 per cent of the employes who pass the desk by name or department number. "I know them well enough to miss them when they're sick or on vacation," he said. De Pauli offers a friendly greeting to all. "If you're nice to people, they're nice to you" is his philosophy. Last Christmas he brought a small tree to the guard station and asked "some of our girls" to each bring one ornament for it. "It was loaded," he recalls. De Pauli is past president of the Convair Coin Club. His coin collection is one of the best in this area. He lives with his wife, Margaret, in Pacific Beach.



Gerri Radiske, department clerk in office services at Electronics - San Diego, is shown operating the Xerox 2400. She also runs all the other duplicating equipment in the department, including the Xerox 420, Ditto, Thermofax machines, and the Kodak Ektolith which turns out plates for offset reproduction. Gerri passed her fifth anniversary with Electronics in January of this year. Before joining the company she worked as clerk for the Tuberculosis and Health Association of San Diego County. She was born in Beloit, Wis., attended school in Madison, Wis., and came to San Diego in 1956. Her husband, Don, also works at Electronics - SD as an electronic technician. With their young son, Jeffrey, 6½, they live in the Poway area.

C-5A Empennage Mockup, 600/640 Filmed For TV

An awards presentation, two educational services training lectures and several product documentary productions were recorded on videotape at Convair division's Lindbergh Field and Kearny Mesa plants during a recent two-week period by personnel from motion pictures and television Dept. 124-0.

Television recording and switching console equipment on loan from Dage television equipment company and installed in a Convair van was used with two TV cameras, a videotape recorder, and allied sound equipment in filming the presentations.

Robert B. Montague, production director, said use of the television switching console equipment permitted "editing" of the tape as it was being made and resulted in a more realistic presentation than would have been achieved through standard motion picture filming and splicing techniques.

The Dage equipment was made available for experimental use after it had been shipped to San Diego for demonstration at an annual meeting of California school audio visual personnel at the Community Concourse convention hall.

Ceremonies in which Convair received a "high standard of quality" award from Lockheed-Georgia Co. for work on the C-141 empennage were recorded in their entirety.

TV recordings were made on mating of parts of the C-5A empennage mockup; Convair 600/640 factory modification and take-off and landing demonstrations; F-102 and F-106 modification; and operation of the airfield landing mat production line.

J. M. Adamson, Convair manager for Lockheed subcontracts, was narrator for the C-54 empennage mockup documentary.

The educational services TV films were on safe handling of hydrogen peroxide with Hal Rubin as instructor, and demonstrations of electrical soldering with Will Weidenfeller lecturing. Rubin and Weidenfeller are both educational specialists with Dept. 130-3.

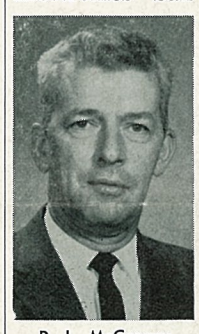
Segments of several of the TV tapes will be used in a closed circuit presentation. Tapes can be played on portable videotape recorders through conventional television receivers.

A "back-up" color motion picture film was made of each of the activities. The videotape recordings also can be transferred by the department to 16mm motion picture film, if desired, through a film transfer process.

E. C. Keefer, Convair chief of motion pictures and television, was producer; C. N. DeMund, TV director; and Frank Finch, technician. Camera operators were Bill Woods, Bill McClure, Hal Reavely, Ray Ussery, Bill Carter, Terry Sweeney, all of Convair, and Les Wolf of General Atomic.

McCreary Appointed Engineering Director For Electronics-SD

Ralph L. McCreary has been named director of engineering at Electronics - San Diego operations, D. C. Prim, general manager, announced early this month.



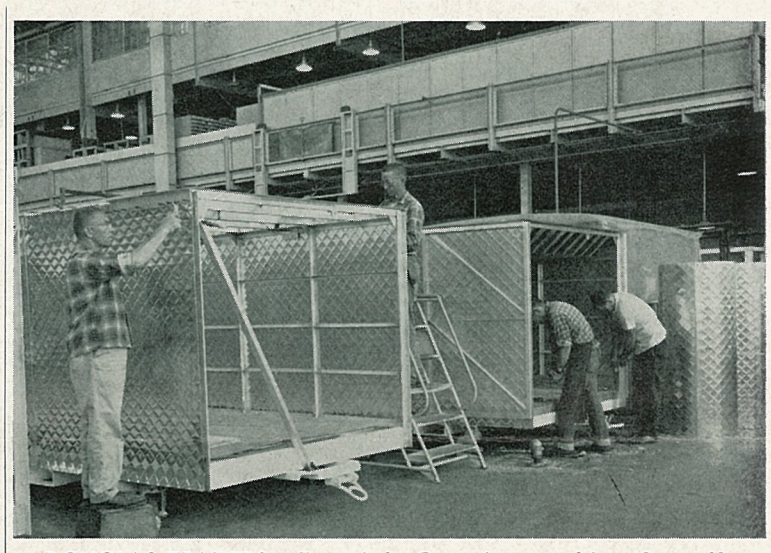
R. L. McCreary

McCreary will be responsible for both engineering and research and advanced technology. He will report directly to Prim.

He comes to Electronics from Watkins-Johnson Co., Palo Alto, Calif., where he was vice president and manager of the Systems Division.

Other positions he has held in the past include director of the advanced technology department of North American Aviation's Autonetics Division; manager of Systems Research Laboratory of Motorola, Inc.; director of research and development, Military Electronics Division; and director of research for Collins Radio Co.

He formerly was a research associate at the University of Rochester, N. Y., and a staff member of the Radiation Laboratory, MIT. He holds a Ph.D. from the University of Rochester in physics and is a fellow in the Institute of Electrical and Electronic Engineers and in the American Physical Society.



DOUGLAS TRAILERS—From left, Convair assemblers Steve Kecskes, Norm Merrill, William Barnett, and Frank Bender assemble sides and floor of dolly transports fabricated at Convair Lindbergh Field plant for Douglas Aircraft.

Storage Trailers Built at LF To House Aircraft Paneling

Three dolly transports built by Convair have been delivered to Douglas Aircraft Co.

The aluminum and steel trailers will be used for transporting and storage of interior trim paneling for DC-8 and DC-9 aircraft at Douglas' Long Beach plant. The paneling can be placed into the 20x5-ft. storage trailers right at the point of fabrication and rolled directly to the plane or stored until needed. The transports can be hoisted on forklifts to the plane's cargo door and the panels unloaded.

The transports are constructed with steel undercarriage, aluminum frame and quilted aluminum siding. They are absolutely weather-tight with rubber-sealed doors, so the paneling will be protected from rain or dampness while stored within the vans.

Experimental department at Convair's Lindbergh Field plant is responsible for fabrication and assembly.

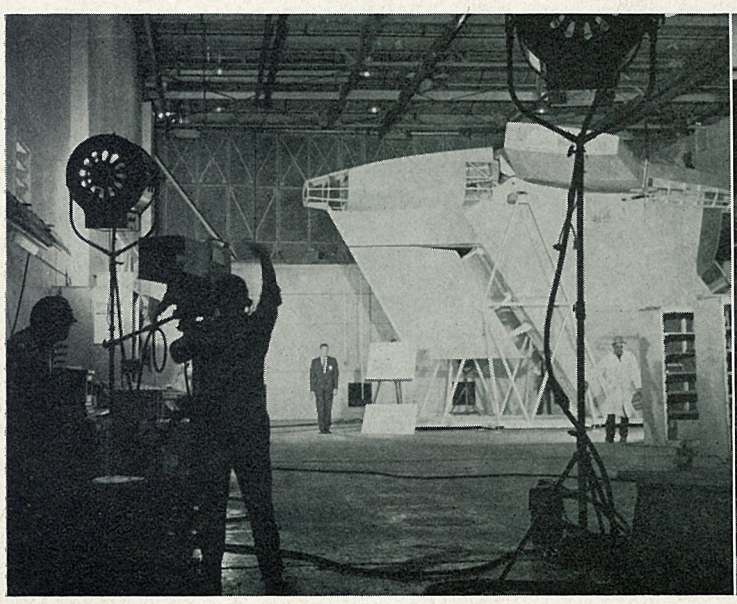
Fred Lee Appointed To Reliability Post

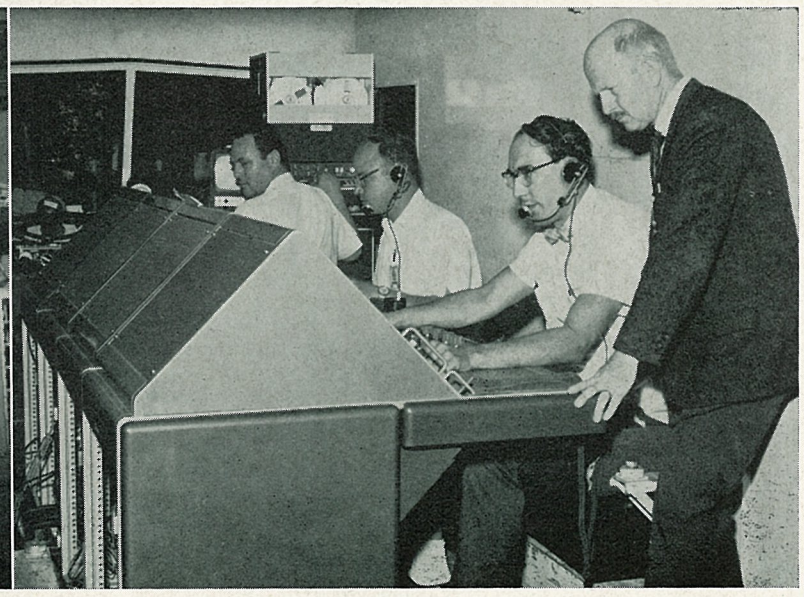
Fred R. Lee Jr., chief of NASA's Combined Systems Test Stand at Kearny Mesa for Convair division since it opened in 1964, has been appointed manager of reliability control for launch vehicle programs.

He succeeds L. I. Medlock who became director of reliability control for the division after P. I. Harr was named Corporate director of reliability, quality control and value control for General Dynamics.

Lee, a native of San Diego with a B.S. in metallurgy from the University of Nevada, joined Convair in 1956 and served nine years at Sycamore Test Site before being named CSTS chief.

He was assigned as a test engineer at Sycamore in 1956 and became an assistant test conductor in 1958, assistant flight test group engineer in 1959, chief of off-site activation and project coordinator for the Atlas F-series missiles in 1961, project engineer and senior flight test group engineer in 1962.





"INSTANT MOVIES"—Videotape recording process, recently used experimentally by Convair division motion picture and television department, shows, in photo at left, J. M. Adamson, Convair manager for Lockheed subcontracts, "on camera" during filming of C-5A empennage mockup documentary. Bill Woods is cameraman. Operating video tape console equipment in mobile unit, in right photo. (from left) are E. C. Keefer monitoring video tape recorder; C. N. DeMund, director; Frank Finch, technician; and R. B. Montague, production director and floor manager. Other division programs were also captured on tape.



CONSOLIDATION—H. H. Mishler of Dept. 959-0, foreground, displays new Inspector's Report/Action Request form that will simplify discrepancy reporting and corrective action system. Holding "clothesline" including examples of forms to be eliminated are, from left, W. L. Botts, M. E. Elliston and A. N. Ennis, all of Dept. 957-0, Hal Rubin of Dept. 130-3 and David Brown of Dept. 146-5.

Single Form Will Streamline Discrepancy Report System

A simplified discrepancy reporting and corrective action system will be put into operation next week at Convair division's Kearny Mesa, Eastern Test Range and Western Test Range installations.

Key to the simplification is a new three-copy Inspector's Report/Action Request form that will replace more than a dozen forms previously used. A similar three-copy supplement will be added when additional space is needed.

The new IR/AR form 5400 will be used to record hardware discrepancy data, obtain and record corrective action taken and conduct material review activities under its multiple use as an action request, problem report, functional test request and inspector's report.

L. I. Medlock, Convair reliability control director, said use of the new form will reduce both direct and indirect cost of discrepancy reporting and corrective action follow-up and provide for faster response, changing program requirements and "quick reaction" capability.

Medlock said concern developed some months ago because of the amount of paperwork and unwieldy nature of the "problem solving cycle."

He said Herbert H. Mishler, a senior quality control engineer in Dept. 959-0, proposed the way for streamlining and simplifying the procedures last fall and has done a "fine job" of coordinating the major changes.

In recent weeks, Mishler and Sam Petcher, a senior reliability group engineer in charge of Dept. 146-3, have worked together in coordinating implementation. Petcher is responsible for supervisvising the combined activities.

Among forms the new IR/AR form will replace are failure and consumption data report/inspector's report A-131, failure and consumption data report/inspector's report abstract A-4181, action request/report A-4311, problem and correction summary A-4262, reliability action report A-204 and functional test request A-955. Also replaced will be TWX problem reports, corrective action memos, problem closeout memos and progress/status memos.

A new pocket guide is being published for all using the system and a new functional manual on procedures also is expected off the press by July 5, implementation date for the new program.

Training sessions in which the new system has been explained in detail for personnel in the San Diego area are being completed this week. Similar sessions were held last week at ETR and WTR.

Seats on Sale For Symphony

A few choice balcony-seat, reduced-price tickets at $2.20 each are available for General Dynamics people for San Diego Symphony performances July 7 and Aug. 10 in the Civic Theatre and July 15 and Aug. 16 in Convention Hall.

Arthur Fiedler will be conducting for the Civic Theatre performances with pianist Lois Carole Pachucki featured July 7 and pianist James Dick on Aug. 10.

John Green will conduct "The Music of Vienna" July 15 and "The Music of Rodgers and Hammerstein" Aug. 16 in the Convention Hall. Marni Nixon, soprano, will be featured July 15 and soloist Richard Fredericks, Grace Lynn Martin, Peggy Coburn and Ken Remo with the San Diego Symphonic Chorale directed by Robert Emile on Aug. 16.

To reserve tickets, phone Mary at KM ext. 3610, Inez at KM ext. 1111, Betty at LF ext. 430, Joyce at LF ext. 580 or Juanita at Stromberg-Carlson ext. 94.

Bill Howard Leads Scavenger Dive

Bill Howard, Jorge Zorrilla and Clayton Valstad led the Delta Divers scavenger dive June 5 at La Jolla Cove.

The divers have scheduled an abalone race for 10 a.m. July 10 at the foot of North Bird Rock, La Jolla, with the first diver back with three legal-size abalone to be declared winner.

Next meeting of the club will be at 7:30 p.m. July 13 in CRA Clubhouse.

Agnes Sliger Tops A-Flight Golfers

Agnes Sliger was A-flight winner and Vi Gilbert won B-flight in the General Dynamics Women's Golf Club tournament June 11 on the Cottonwood Country Club's nine-hole course.

Second through fourth place winners in the A-flight were Mabel Dunn, Ann Gagnon and Freda Magargal and in the B-flight were Wanda Rose, Evelyn McFall and Eileen Steffes.

Doris Parker of Convair division has been elected club president for the coming year. Other new officers are Jerre Myers, vice president; Barbara Bugbee, secretary; and Nell Bartlett, treasurer.

The club's next tournament has been scheduled for 8 a.m. July 9 on the Mission Bay course.

Nearly 50 Travelers Visit Pine Crest

Travelers trailer club had 48 persons in 17 units attend June 18-19 outing at CRA's Pine Crest resort in the Cuyamaca Mountains. They enjoyed a pot luck Saturday afternoon and were entertained Saturday evening with two nature movies shown by Jim Shinn.

The club's July business meeting will be held during the July 30-31 outing at Oak Springs Ranch. For information, phone Virg Marshall, KM ext. 3541.

CRA Calendar

(For information on CRA activities call CRA Headquarters, Kearny Mesa, ext. 1111. Deadline for copy for the next issue of GD/NEWS is July 6. Call ext. 3322 KM or 1071 LF.)

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BADMINTON—Play Mondays, 7-10 p.m., Federal Bldg., Balboa Park.

BONAIR FLYERS — Meeting July 5, 7:30 p.m., CRA Clubhouse.

BRIDGE — Play each Friday, 7:30 p.m., CRA Clubhouse.

CERAMICS — Group meetings Tuesdays and Thursdays, 7-10 p.m., CRA Clubhouse.

CHESS — Play each Wednesday, 7:30 p.m., CRA Clubhouse.

DELTA DIVERS — Meeting July 13, 7:30 p.m., CRA Clubhouse.

DRAMA — Meeting July 11, 7:30 p.m., CRA Clubhouse.

FENCING — Workouts and instruction Fridays, 7:30-10:30 p.m., YWCA, 10th & C Sts.

ICE SKATING — GD skate nights Thursdays, 6:15-7:45 p.m., Mission Valley Ice Arena.

MOVIES — Reduced prices at State Theater, Euclid & El Cajon Blvd. Admission: adults, $1; children, 35¢.

PISTOL CLUB — Club shoot July 10, 9:15 a.m., SD Police Range, Federal Blvd. and Home Ave.

RADIO CLUB — Meeting July 7, 7:30 p.m., CRA Clubhouse.

RIDING CLUB—Meeting July 13, 7:30 p.m., CRA Clubhouse.

SCULPTURE — Workshop sessions, Mondays, 7:30-10:30 p.m., CRA Clubhouse.

SKI CLUB — Meeting July 7, 8 p.m., Catamaran Hotel.

SPORTS CAR CLUB — Meeting July 13, 7:30 p.m., Convair executive dining room, Pacific Hwy.

TOASTMASTERS — Convair Toastmasters No. 3745 meet Wednesdays, 4:15 p.m., Dynamic Toastmasters No. 467, Thursdays, 5:15 p.m., both in CRA Clubhouse.

TOASTMISTRESS CLUB—Serra Mesa Club meets first and third Mondays, 7:30 p.m., CRA Clubhouse.

TROPICAL FISH — Meeting July 11, 7:30 p.m., CRA Clubhouse.

San Carlos Chosen For Mgt. Club Golf

Friday (July 1) is entry deadline for the Convair Management Club's annual championship golf tournament July 9 and 10 at Sunset San Carlos golf course.

The club championship and flight winners will be determined in an 18-hole medal play handicap tournament. One special flight will be open to members not having established handicaps.

Jack Nichols, golf chairman, said the tournament will be limited to 120 players. The tournament committee will issue pairings and starting times.

Entry blanks, accompanied by the $5 entry fee which includes greens fee, are to be mailed to Helen Cook, KM mail zone 131-80.

AREA BOWLING PICNIC JULY 10

General Dynamics families are invited to the San Diego Bowlers Association annual picnic July 10 at Felicita Park near Escondido. Tickets for the barbeque beef buffet luncheon are $1.50 for adults and 75 cents for children and can be obtained from Sam Bucaro, KM ext. 2113.

MARLOWE WINNER IN CITY GOLF

Richard V. Marlowe, a subcontract auditor in Convair Dept. 197-0 and a member of CRA Golf Club, won the third flight title this month in the City Amateur Golf Championship with net scores of 68, 67 and 71 for a 54 hole total of 206.



"MAD HATTERS"—Mr. and Mrs. Mike Alianelli (Dept. 300-3) are shown with group of youngsters they chaperoned during day at Disneyland.

Children Enjoy 'Memorable Day' On Mgt. Club Disneyland Trip

Ninety-three selected youngsters from Sherman, Stockton and Logan Elementary schools were guests of Convair Management Club for an expense-paid day at Disneyland, June 12.

Many of the 7 through 12-year-old youngsters, selected for the trip by school officials, had never been outside San Diego before.

Twenty-five Management Club members and wives served as hosts on the trip, financed by profit from the big General Dynamics family party attended by 9,673 on March 26.

The youngsters made the trip in three charter buses and, after visiting the "Mr. Lincoln" exhibit and receiving a hat from the "Mad Hatter" shop, had lunch with chaperones and rode on 15 amusement rides in the "Magic Kingdom."

Refreshments were served on the buses on the trip to Disneyland and boxes of hot chicken on the return trip. Pepsi-Cola was donated by Frank Alessio Sr., milk by the Prophet Co., candy by E. J. Seeley of "Seeley's Candy Stick" and donuts by Ben Towne Realty Co.

Robert C. Emerson of Dept. 403-3, chairman, said the children were well behaved and "had a really memorable day." He said he believes the event "has been extremely beneficial and has demonstrated General Dynamics management interest in community relations."

Management Club hosts for the trip, in addition to Emerson, were Mr. and Mrs. Ronald Vincellette, Mr. and Mrs. Jesse Gonzales, Mr. and Mrs. Darwin Isaac, Mr. and Mrs. Charles Reid, J. W. Coddou, Mr. and Mrs. Mike Alianelli, Mr. and Mrs. V. A. Petricola, Larry Sweeney, Mr. and Mrs. James Terrien, Kenneth Fountain, Mr. and Mrs. Sam Special, Mr. and Mrs. Leonard Breen, Mr. and Mrs. Harmon Johnson and Walter Bailey.

July 15 Deadline For Dodger Trip

July 15 is deadline for reservations for the CRA-sponsored trip to Dodger stadium for the July 24 double-header between the Los Angeles Dodgers and New York Mets.

Transportation and game admission will be $5.50. Seats will be under the roof between home plate and third base.

Pete Beyrer of CRA staff said two buses will carry 82 fans to the game. One bus will load north of Bldg. 19 at Lindbergh Field and one in front of Bldg. 2 at Kearny Mesa.

Reservations can be made at CRA Clubhouse, Convair and Stromberg-Carlson employe services and at the engineering mailroom on the third floor of Bldg. 51 at Lindbergh Field.

Last 'Inside Convair' Set For Tomorrow

Final presentation in the current "Inside Convair" series will be given at 4:45 p.m. tomorrow (June 30) in the Bldg. 14 second floor auditorium at Lindbergh Field.

Earl W. Boteler, program manager, will discuss VSX aircraft studies and Chester Dunn, director of marine products, will speak on hydrofoil boat plans.

ROCKHOUND CLUB TAKES "VACATION"

CRA Rockhounds have suspended meetings for the summer and will resume in September.

Entry Deadline Set For Men's Ind. Bowling

Deadline for sign-up for the fourth annual San Diego Men's Industrial Bowling Tournament to be held July 16-17 and 23-24 at Clairemont Bowl is midnight July 4. Entries may be mailed.

Entry forms for General Dynamics and government employes at plant locations can be obtained at the CRA Clubhouse and Convair, Stromberg-Carlson and Electronics-SD employe services outlets.

Maximum entering team average is 900; doubles, 400. Teams will be handicapped two-thirds of 900 and individuals two-thirds of 200. Bowlers must use their 1965-66 book average or average of 21 games or more as of April 1, whichever is higher.

Entry fee will be $3.75 per man per event with a $2 all-event entry optional. There will be one cash prize for each eight entries. Additional information can be obtained from Sam Bucaro, KM ext. 2113.

Combs-Leasure Team Victorious in Bridge

Freddie Combs and Eve Leasure were winners in the June 17 CRA Bridge Club play under the Howell system. Freddie and her husband, Al, are leaving for a new assignment with the Electronics division in Chicago.

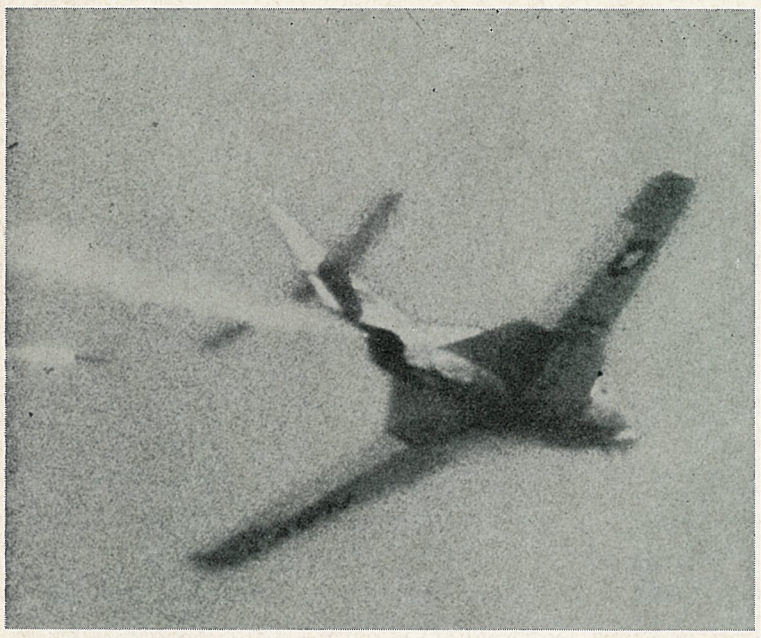
Winners in June 10 club play were Mrs. Bob Combs and Mrs. Ben Hoffman, north-south, and Jim Stevenson and Al Buggele of NASA, east-west.

Pistol Teams Place One, Two in Shoot

Convair teams placed first, second, seventh and ninth in the 13th annual Industrial Pistol Shoot held June 12 at the San Diego Police Range.

Convair's Warren Ranscht tied at 296 with W. Kanagy of the San Diego County team for individual honors.

Ranscht led team mates J. S. Knutson, H. W. Black and R. E. Schneider to first place with a score of 1,160. Thirty points back, taking second place, were Jim Halfacre, R. M. Anderson, J. L. Williamson and Don Smock.



REDEYE ACTION—Photo of recent test firing at USNOTS, China Lake, shows Redeye missile pursuing QF9 jet drone. Shoulder-fired air defense guided missiles are being produced at Pomona division for Army and Marine Corps. Instant after photo was taken Redeye scored direct hit.

Corporate-wide Team Assigned to 'FDL' Task

General Dynamics has assembled a team from throughout the Corporation to compete for the job of designing, constructing and maintaining the U. S. Navy's planned fleet of Fast Deployment Logistics (FDL) ships.



S. O. Perry

The Corporation is competing against three other firms to design, build and maintain a fleet of cargo vessels, devise new shipbuilding management and production techniques, and establish a modern, highly efficient shipbuilding facility.

FDL represents a new approach by the Navy to ship procurement. It is a "total package" concept — likened to aerospace programs wherein a contractor has responsibility for the total program, from design through the service life of the ships.

The General Dynamics FDL team, directed by S. O. Perry, is part of the Corporation's new surface ship division at Quincy, Mass.

Perry said approximately 250 persons currently are on the team fulltime and they are supplemented as needed by other skills from throughout the Corporation.

Corporate Office, Convair, Electronics, Electric Boat, Fort Worth, Pomona, all have made substantial contributions to the Quincy division's FDL effort, providing specialists in such areas as operations analysis, procurement, program planning, systems integration, facilities, reliability and engineering, Perry said.

He said the size of the team will be increased substantially during later phases of the competition, but that the practice of drawing on special skills from all divisions will be continued.

"We're approaching FDL on a Corporate team basis," he said, "because we feel we have all the skills, capabilities and resources within General Dynamics to do the job well."

He points to the current Apollo Instrumentation Ships program as an example of the effectiveness of a Corporate team approach. Six divisions of General Dynamics are teamed in that program to convert three World War II T-2 tankers into sophisticated instrumentation ships to track and communicate with Apollo astronauts during missions to the moon.

FDL ships will be the first vessels built for the Navy where the Navy has not specified size, armament, speed or carrying capacity. For the program, the Navy has established a performance envelope, ruling that, among other features, the vessels will have high speed, long range and a capacity to discharge cargo rapidly in under-developed ports.

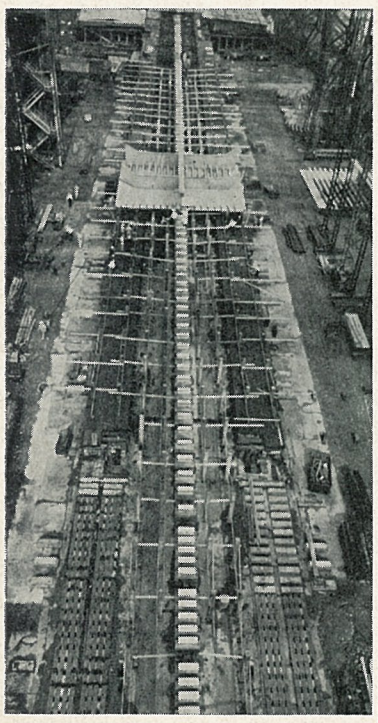
The ships will serve as part of an over-all fast deployment logistics system that also will depend upon the giant C-5A jet transport aircraft. The ships will carry equipment and supplies for troops who will be transported by the aircraft.

Assessing General Dynamics' qualifications for the FDL program, Perry pointed out:

"Despite all other important ramifications of the program, the heart of it is shipbuilding, and that's a field in which we have been engaged since the turn of the century.

"A second important aspect of FDL is that it requires a new management approach, in effect, an aerospace management approach. This is another area in which we feel well qualified. We have had years of experience in aerospace management, with both aircraft and space systems. This has provided us with a learning curve that can only be acquired through time and experience."

Perry was assigned to the FDL proposal preparation from Corporate Headquarters where he had been a member of the engineering and program development staff. He formerly was assistant director of Combat Systems in the Office of the Secretary of Defense and previously was with Ling-Temco-Vought, Inc. as general manager, Range Systems division.



FIRST STEP—Keel section (58-tons!) for USS Wichita was laid June 16 at Quincy (Mass.) division. First of new class of Navy vessel, Wichita is designed to replenish operating forces at sea. Division will build two under $55.5 million contract awarded a year ago.

(ey Is Stay Active

Retirees Report Adjustment Easy, But They Miss 'That Old Gang'

A random survey of General Dynamics retired personnel, conducted by questionnaire, reveals that more than 75 per cent found the adjustment either very easy or "not particularly difficult."

A substantial number reported they "liked everything about retirement" and one man wrote "the Company should have hit me on the head and made me do it sooner."

Approximately 20 per cent of those answering the questionnaire reported they had part time work for pay and a few have full time jobs (one is a college professor who wrote: "I've got it made!")

However, a considerably greater number do "work" to some degree, such as maintenance work on rental houses, or caring for acreage, housework and gardening. There appeared to be some correlation between income and part time work, but not cut and dried. The tone of the answers seemed to be that although the extra money came in handy the main thing was to keep occupied and not to become sedentary.

As might be expected, the list of activities GD retired people take part in is as long as your arm. Travel is high on the list, and there's church work, home workshops, rockhounding, fishing, sailing, motorboating, golf, mountain climbing, camping, etc.

One individual listed "dancing and cycling and flying my own plane." Another: "I roller skate four hours every day and compete against 20-year-olds. I'm 70." And another: "I'm not as active in athletics as I was a few years ago. I'm 80."

Following are quotes from different questionnaires:

"My wife and I walk five miles or more a day and enjoy God's green trees . . . I think walking and looking at nature is our best hobby."

"I have a big back yard — 35 acres. It's mine and I don't owe a penny. I was offered $17,500 but I won't sell because I get a big kick out of raising sheep, have a good garden, 25 fruit trees. I sell burial insurance on the side when I want to which nets me about $165 a month; am a substitute RFD mail carrier, which pays me $27 a day when I work; I get $166.90 a month Social Security — so why would I not be happy?"

"I play golf, bowl, read and always have plenty to do on my 212 acres."

"I think a retired person is making a mistake to crawl into his shell. He ought to be doing something, if only selling soap, that will keep him in contact with people."

"I worked up a job of my own. I put an ad in the paper and now I'm an all-around handy man."

"I own and operate a fruit orchard, about 1,000 trees. This leaves us free to spend the winters in the south and the summers in Montana."

"I get up early and work 30 hours a week at a nine-hole golf course and love every minute of it."

"The first two years after retiring I worked hard weeding acreage where I have 38,000 pine seedlings, planted three years before . . . Next year I will cut fence posts (from other acreage) and also make a pole cut (30 to 70 ft. poles). Two years ago I planted 2,000 more pines on a new place. At present I am the laziest person in Atlanta, Tex., and enjoying same."

Not all answered in such positive fashion. A number are finding the transition painful, either because of inability to adjust to less income, or failure to keep active. One man reported, "I miss the lack of authority and the responsibility my job required of me." Another wrote: "It is very boring . . . after being with people 52 years."

One retiree commented: "Many think a lot about reduced income. I think this a false excuse. If one figures the savings from not having an extra car, tools, work clothes, lunches, etc., the difference disappears. I have as much money now as when I retired five years ago. It just doesn't cost as much to live a retired life as it does a working one."

'The Nicest People You'll Ever Find'

A few retirees reported they missed the routine of regular work but almost all answered that the main thing they missed was "that old gang of mine." They wrote this in many different ways but it adds up to the same.

Evidently virtually all had had a pleasant business life with General Dynamics and continued to have a warm spot in their hearts for "the nicest people you could hope to work with."



TAKING IT EASY—Fishing ranked high on list of leisure activities reported by General Dynamics retired personnel.

Early Planning Advised For Financial Affairs

Retirees surveyed had some sound advice to offer others.

Asked about preparation for retirement, they commented both on financial and philosophical aspects.

"At the earliest possible age, start a true investment program, not just a nest egg," one commented.

"No one without a reasonable income will find retirement rewarding," said another.

A number commented favorably on General Dynamics' Saving and Stock Investment Plan.

"When my family was quite young it became necessary for my husband and me to help his parents financially. At that time I determined that I would never be a burden when I was older. When my children were in junior high I took a job and now, with my husband, have attained a degree of independence that is gratifying . . . I have been offered employment but my income is such that I don't need it and can't afford the time, anyhow . . ."

"I began saving in 1950 and saved $10,000 . . . I learned radio and TV repair and with our Social Security we do all right. I plan to take up apiculture (beekeeping). I am 80 and in good health."

"Start preparation with the first pay check. Have a detailed savings and investment program and stick to it. Invest in bonds and stocks or annuities."

One couple, who had approached retirement in a very thoughtful manner, advised: "Pick out several places where you think you might want to live when retired. Spend two vacations at each place, one in winter and one in summer, and ask questions about medical facilities, climate, etc. Don't get too far out in the boon docks. You will need people around you. Have at least one outdoor hobby or you'll turn into a hothouse vegetable."

"At 50 you may think you want 160 acres, cattle and horses. But at 65 it may be a different story."

Most recommended hobbies. One retiree counseled: "Without a hobby a retired man usually finds himself a bore to himself and his wife. (My own clock/watch hobby has been an outlet for me for 45 years.) In spite of what we would like to think, the wife enjoyed her eight hours of freedom and suddenly when shackled with the husband loafing around all day she is at a loss what do with him!"

People Mobility

Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

KARL KOVAC has completed his management internship at Corporate Headquarters and has accepted a position with Liquid Carbonic as assistant to the national sales manager-welding equipment.

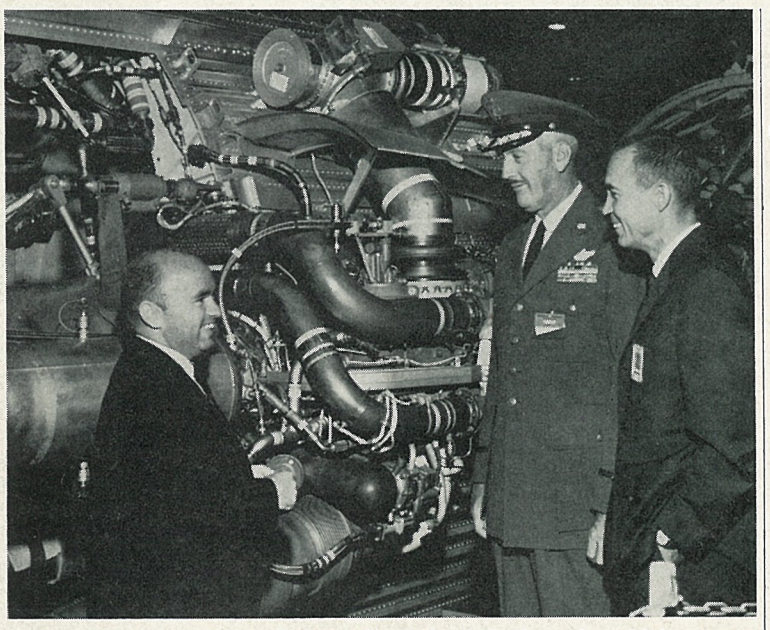
CLINTON E. GEORGE (1950) from Convair division to quality control engineer, Electronics, San Diego; **KARL J. KUHL** (1960) from Electronics division, Rochester to Sr. cost estimator, Electronics, San Diego; **HARRY R. PHOTINOS** (1963) from Electronics, San Diego to electronics engineer-senior, Convair; **JAMES C. GALLACHER** (1956) from General Atomic to design engineer, Convair; **KENNETH B. BITTER** (1961) from Convair to Corporate Headquarters, New York; **ARCHIE L. JAMES** (1955) from Convair to material liaison man, Electronics, San Diego; **DAVID J. CROAN** (1959) from Convair to Quincy division; **WARREN W. CURTIS** (1962) from Pomona to electronics engineer, Electronics, San Diego; **BRYAN MURPHY** from Corporate Headquarters to organization and systems supervisor, Fort Worth.

WILLIAM M. HERRICK (1965) from Electronics, Rochester to program analyst, Electric Boat; **ADOLPH C. VON STERNBERG** (1963) from Electronics, Rochester to engineering supervisor, Electric Boat; **MELVIN F. THOMAS** (1964) from Pomona to engineering, Electronics, Rochester.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 19, No. 14 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, July 13, 1966



AIR FORCE GUEST—Robert G. Daly, left, launch vehicle manufacturing operations manager, describes modification work on Atlas missile being performed for Air Force Ballistic Systems Division, for Maj. Gen. H. J. Sands, BSD commander, and C. S. Ames, vice president-military space programs. General Sands was recent Convair guest for briefing and plant tour.

Dr. Silverstein, Maj. Gen. Sands Briefed on Division Programs

Dr. Abe Silverstein, director of NASA's Lewis Research Center, and Maj. Gen. H. J. Sands, commander of the Air Force's Ballistic Systems Division, were among recent visitors to Convair division's Kearny Mesa plant.

Silverstein was a guest June 30 and July 1 for a status review on the new SLV-3A and SLV-3C launch vehicles and for meetings with Ronald Rovenger and other resident NASA officials.

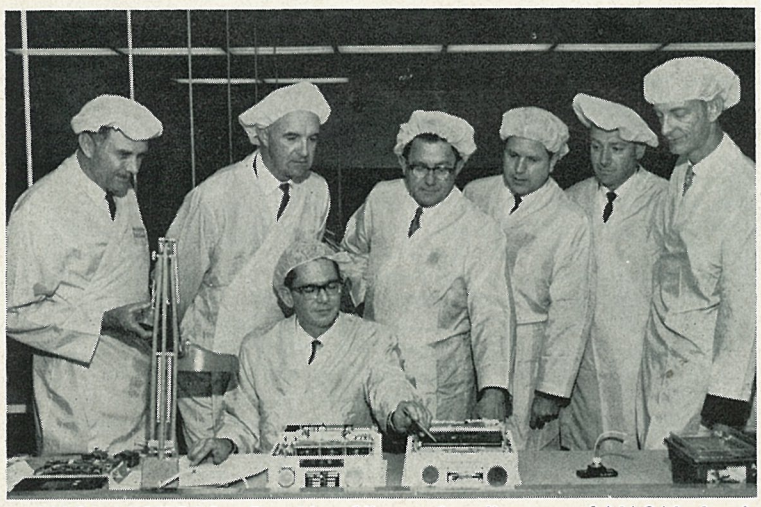
He also met with Jack L. Bowers, division general managers, and other division officials and was briefed on division products and programs.

Silverstein was accompanied by Bruce T. Lundin, associate director of development, and other NASA-Lewis representatives.

During a plant tour, he inspected the static inverter recently redesigned by the division and now being produced by electronics manufacturing operations, Dept. 780-0.

General Sands was a guest June 30 for a briefing on the division's organization and product plans and for a tour of the Atlas final assembly and checkout area. He also visited General Atomic division facilities.

Sands leaves his present position Aug. 1 to become commander of the Industrial College of the Air University at Maxwell AFB, Ala.



NASA VISITORS—Dr. Abe Silverstein, director of NASA's Lewis Research Center, standing third from left, watches as J. W. Schaelchlin, Centaur electrical group engineer, points out features of new Convair static inverter for Centaur. Others, from left, are Frank Kemper, Convair electronics factory manager; Jack L. Bowers, Convair division general manager, G. L. Hansen, vice president-launch vehicle programs; Ronald Rovinger, NASA resident engineer at Kearny Mesa, and Bruce T. Lundin, associate director of development for Lewis Research Center.

New Inverter Designed and Built For Use on Centaur Vehicles

Convair electronics personnel recently completed package redesign and are now producing a new static inverter for use on the division's Centaur upper-stage vehicles.

The inverter converts 28-volt direct current to 115-volt, 400-cycle three-phase alternating current for guidance, autopilot and propellant utilization systems.

Frank Kemper, electronics factory manager, said the new inverter is being produced under direction of NASA's Lewis Research Center and will have greater reliability and improved structural and thermal characteristics than models previously purchased for use.

The first of the new inverters is to be used on the Atlas-Centaur 9 flight later this year.

J. W. Schaelchlin, Centaur electrical group engineer, was in charge of the redesign project. John Redelings served as electronics engineer, Robert Hertzberg as packaging engineer and George Bakich as senior design engineer on housing and inductor modules.

(Continued on Page 2)

Employes Are Invited To Assist In Recruiting

Convair division will need to recruit several hundred new employes within the next six months for work on new and follow-on business contracts and to build up technical capability in both current and new product areas.

The division is embarking on a new program which gives all current employes an opportunity to recommend qualified personnel.

Employes knowing men and women with needed skills are asked to fill in the accompanying form and send it as soon as possible to the employment section via interoffice mail. All referrals will be acknowledged and the employe notified of final disposition.

Robert M. Smith, manager of employe relations and employment, said Convair employes can be very helpful in locating personnel to fill the new openings.

"Personal contact is most important in attracting well qualified new employes—and we are looking for the best qualifed engineers and craftsmen available," he said.

Smith said the division during the past few months has acquired a number of new and follow-on contracts, both in aircraft and space areas.

"Our current recruitment effort has two purposes," he said. "First, we need qualified personnel to effectively complete current programs, and secondly, we must strengthen the division's capabilities if we are to compete in the areas included in our product line and long-range plan."

Smith said about half the new personnel needed will be for engineering and technical positions and half for factory positions.

Immediate openings for engineering and technical personnel are in aerodynamics, aircraft and missile flight test evaluation, aircraft and missile structural design, advanced guidance analysis, circuit design, control and structural dynamics, economic analysis, electrical/electronics test labs, flight test, guidance and control design, mechanical design and mechanical test lab engineering.

Also, weights engineering, micro-bonding, operations research, packaging design, reentry heating, reliability, RF/instrumentation design, scientific and business programming, standards labs, structural analysis, test equipment design, thermodynamics and trajectory analysis.

Some of the technical personnel needed will be for work in marine products and advanced ICBM program areas.

Needed by factory departments are tool planners and designers, molded plastic tool builders, plaster pattern makers, template makers, tool and die makers, form block makers, milling machinists and operators, jig bore machinists and operators, lathe machinists and operators and jig and fixture builders.

Factory personnel needed will work on C-5A empennage fabrication and on manufacturing operations for other new contracts.

To help locate prospective employes, Convair also is conducting a nationwide recruiting campaign with field recruiting in major cities and advertisements in major newspapers and magazines.

Please complete this form and return to R. M. Smith, manager of employe relations and employment, Mail Zone 130-90, General Dynamics Convair Division, 5001 Kearny Villa Road, San Diego, Calif. 92112.

Your Name_____

Address_____

_____

Dept._____ Ext._____

Home Phone_____

I WOULD LIKE TO RECOMMEND

Name_____ Telephone_____

Address_____

City_____ State_____

This person is experienced in_____

_____

_____

In contacting this individual, may we use your name as the person who recommended him? ___yes ___no

Contracts Awarded Convair Surpass $70 Million in First Half of '66

Convair division received more than 30 new and follow-on contracts for more than $70 million during the first six months this year. Customers range from NASA, the Air Force, the Navy, the Army, and the Coast Guard to Lockheed and Douglas and commercial airlines. Orders also have been received from other General Dynamics divisions.

Largest of the contracts, won in intensive competitive bidding during the six-month period, was the C-5A empennage subcontract from Lockheed-Georgia Co.

Officials said acquisition of many of the new contracts can be attributed to placing of responsibility for sales with departments, further definition of division product lines and concentrated effort to reduce overhead and put the division in the best possible competitive position.

Following is a brief description of some of the work being done:

Qualification testing of Saturn missile components; design fabrication and testing of an infrared spectroreflectometer; study and design support of boost-glide re-entry program; in-flight refueling kits for F-106 aircraft, study and design in support of re-entry measurement program; Coast Guard navigational sea buoy; Army range measurement system.

Study of techniques for analyzing stability strength of stiffened shell structures; manufacture, integration and launch of space research rockets; manufacture of 20 high-impulse retrorocket systems; spare parts production for Atlas/Agena; production of Navy mine cases; C-5A empennage.

Modification of five Atlas missiles for "Big Oscar"; study to calculate near wake of conical bodies; study on measurement of electromagnetic radiation from space; study on feasibility of self-erectable or astronaut-erected antennas in space; mechanical analog study of liquid propellant in low and "zero-G" fields; design and fabrication of laser in-

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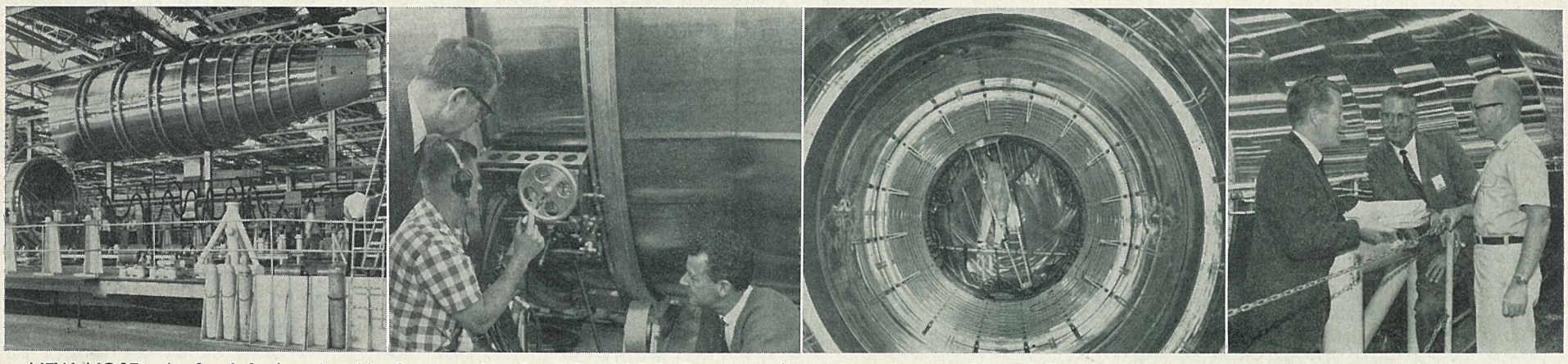
Convair Division's Prospects Reviewed Before Roger Lewis

Convair division's new long-range (five-year) plan was reviewed in a meeting attended by Roger Lewis, General Dynamics Corporation president, and 12 members of his staff June 28 at the division's Kearny Mesa plant.

Jack L. Bowers, general manager, outlined the division's current status and future objectives. Presentations were made by Grant L. Hansen, vice president-launch vehicle programs; W. L. Van Horn, Lindbergh Field operations plant manager; C. J. Dunn, director of marine products; C. S. Ames, vice president-military space programs; E. J. Huntsman, Convair Service Center manager; and E. R. Peterson, vice president-research and engineering.

Emphasis will be placed during the next five years on increasing

(Continued on Page 2)



NEW NOSE—At far left, heavier-skin front section for Atlas 115-F, first "old bird" modified for boost-glide re-entry, is moved into place. Second from left, new semi-automatic welder is operated by E. H. Mitchell as Robert Bruce and Thomas Hughes observe. Second from right, David Holloway adjusts pressure bar inside Atlas during welding. At right, A. E. Berndes discusses work with John Blyler of Aerospace Corp. and Maj. Ed Houston, AF Ballistic Systems Division project officer.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between July 1 and July 15.

Thirty-year: Dept. 001-0, C. B. Reid; Dept. 401-6, L. E. Ray; Dept. 403-3, L. M. Gibson.

Twenty-five-year: Dept. 015-0, G. F. Nebelung; Dept. 019-0, R. B. Walling Jr.; Dept. 024-0, G. S. Bruscia, J. H. Hatchett, J. C. Wilson; Dept. 031-0, M. A. Cope, N. E. Eldridge, G. D. Kline Jr.; Dept. 041-0, J. Berardini, H. G. Blomke, H. A. Stroing; Dept. 059-3, R G. Damschroeder; Dept. 250-2, R. F. Missman; Dept. 400-3, E. A. Ganoe; Dept. 400-5, J. C. Calhoun; Dept. 401-0, J. A. Bottom; Dept. 401-5, C. L. Planchon, C. F. Priddy, C. P. Thomas; Dept. 420-4, W. J. Carpinelli; Dept. 451-0, W. L. Melichar; Dept. 460-0, J. L. Ottoman; Dept. 500-0, E. R. Peterson; Dept. 508-0, J. H. Struthers; Dept. 526-6, F. G. Williams; Dept. 731-0, R. E. Schmieder; Dept. 744-0, C. W. Koskinen; Dept. 817-0, E. G. McCleave Jr.; Dept. 966-4, A. Van Norman; Dept. 972-0, H. L. Porter; Dept. 987-0, P. Heisel.

Twenty-year: Dept. 001-0, C. D. Johnson; Dept. 015-0, W. Sileneck; Dept. 016-0, M. R. Vander Veer; Dept. 056-1, H. L. Addis; Dept. 101-6, S. C. Dornier; Dept. 595-0, L. J. Johnson; Dept. 832-2, A. A. Sieber; Dept. 966-3, E. D. Berlin;

Fifteen-year: Dept. 015-0, D. C. Baillif, W. F. Leverenz; Dept. 016-0, L. C. Lawson; Dept. 041-0, E. J. Skurla; Dept. 101-7, S. Weiner; Dept. 143-2, R. H. Gruner; Dept. 250-5, O. L. Waller; Dept. 505-1, D. K. Hall; Dept. 508-0, G. F. Deering; Dept. 540-0, R. W. Mullis; Deept. 585-3, H. A. Mitchell Jr., R. C. Peller; Dept. 732-0, R. L. Roffe; Dept. 835-4, J. W. Andrew; Dept. 845-3, D. W. Schultz; Dept. 950-7, D. J. Hatfield; Dept. 962-2, J. D. Hash Jr.; Dept. 962-3, P. W. Roberts; Dept. 972-0, J. W. Forget.

Ten-year: Dept. 002-0, M. L. Wilson; Dept. 019-0, B. C. Lovelady; Dept. 101-0, R. L. Reilly; Dept. 101-4, J. V. Seward Jr.; Dept. 126-0, T. E. Hemphill; Dept. 130-1, G. G. Millard; Dept. 142-1, C. S. Kikushima, A. G. MacKay, R. C. Wasmund; Dept. 143-2, P. W. Haggard, R. F. Luth; Dept. 143-3, E. H. Stevens; Dept, 145-1, F. Paplawsky; Dept 191-0, S. L. Streeper; Dept. 191-1, V. H. Vaughn; Dept. 193-3, R. F. Mergner; Dept. 210-1, R. F. Baker; Dept. 250-2, S. C. Page; Dept. 250-5, W. R. Hill; Dept. 300-3, M. R. Perkins, K. L. Smith; Dept. 454-0, W. A. Mayhorn.

Dept. 506-5, D. B. Dewey Jr.; Dept. 511-1, B. W. Bracka; Dept. 529-0, A. T. Hunter Jr.; Dept. 541-0, D. V. Norgaard; Dept. 543-5, K. N. Jones; Dept. 545-4, M. R. Moss; Dept. 551-3, S. C. Maki, R. A. Waasted; Dept. 551-4, E. H. Maurer Jr.; Dept. 565-1, J. A. Whalen; Dept. 579-2, W. D. Johnson; Dept. 584-2, P. B. Stephens; Dept. 595-0, R. A. Elliott, J. W. Goanacou; Dept. 731-0, C. R. Moon; Dept. 733-0, F. O. Gartland, M. M. Moates; Dept. 756-0, H. O. Kuntze; Dept. 780-1, E. I. Kovacs, A. M. Raymond, G. H. Zathan; Dept. 780-4, D. M. Carey; Dept. 816-3, H. T. Bass.

Dept. 832-3, L. F. Aguero, D. J. Cooper; Dept. 833-1, T. F. Ryan Jr.; Dept. 845-4, D. C. Reed; Dept. 850-1, I. M. Smith; Dept. 850-3, R. E. Carroll; Dept. 950-2, A. B. Cox; Dept. 951-6, W. E. Barnes; Dept. 952-5, W. C. Strobl; Dept. 957-0, H. G. Anderson, L. G. Gentile, J. A. Madden; Dept. 961-7, F. J. Schulz, R. A. Silverman; Dept. 962-3, W. P. Shine; Dept. 963-6, R. C. Delicath; Dept. 963-8, E. E. Green; Dept. 964-0, V. B. Wiens; Dept. 964-2, C. G. Perdue; Dept. 964-5, J. B. DeMarco; Dept. 967-3, M. C. Mendenhall; Dept. 969-2, E. H. Rayspis; Dept. 970-1, A. N. Sletnar; Dept. 972-0, J. L. Johnson; Dept. 973-3, W. J. Williams; Dept. 979-1, F. Eggers; Dept. 979-2, J. G. Rassel Jr.; Dept. 979-4, G. C. Butler; Dept. 985-1, J. E. Weir; Dept. 988-4, W. E. Hatcher; Dept. 988-5, W. A. Bates Jr.

ELECTRONICS

Fifteen-year: Dept. 68540, M. Ishihara.

Ten-year: Dept. 64780, G. Garcia; Dept. 66830, W. J. Creamer; Dept. 75490, H. L. Eddy, F. V. Knight Jr.

STROMBERG-CARLSON

Ten-year: Dept. 8550, C. T. Bradford.

Awards

CONVAIR

Employe Suggestion awards approved for the week ending June 10.

Dept. 001, E. H. Hussong; Dept. 002, E. Fountain; Dept. 015, S. Brown (two awards), H. B. Wilson; Dept. 019, V. H. Fouquette, S. Rivas, H. R. Roeser; Dept. 041, L. Hudson; Dept. 059, W. R. Killeaney; Dept. 113, F. M. Castro; Dept. 142, L. E. Johnson; Dept. 143, J. A. George, J. W. Pullis, R. R. Reekers; Dept. 715, G. J. Friel, J. Teague.

Employe Suggestion awards approved for the week ending June 17.

Dept. 001, W. L. Dueber, C. B. Reid; Dept. 015, S. Brown, A. T. De Casas, F. P. De Nardo, H. B. Wilson (two awards); Dept. 041, L. Hudson, C. O. Holba and L. Hudson (joint award); Dept. 141, J. T. Asprion, R. H. Bell, R. G. Lindsey, F. Mejia; Dept. 149, L. G. Lawson; Dept. 251, J. B. Evans; Dept. 759, E. Gabbard, R. E. Orozco; Dept. 835, J. Santos; Dept. 964, D. J. Page; Dept. 972, M. J. Gontesky, C. M. Ray; Dept. 985, P. A. Malone, E. M. Van Huss; Dept. 987, J. C. Chuckta, C. E. Roach Jr., T. R. Roberts; Dept. 988, W. A. Nutt; Dept. 989, W. G. Schultz, W. H. Weatherby, J. D. Willingham.

Employe Suggestion awards approved for the week ending June 24.

Dept. 015, J. F. Silva; Dept. 019, G. E. Armstrong (two awards), K. E. Bennett; Dept. 041, C. W. Tabor; Dept. 141, R. Hughes, H. G. Warner; Dept. 143, R. R. Reekers; Dept. 146, G. F. Metz; Dept. 149, R. M. Darling; Dept. 193, K. L. Dean; Dept. 250, A. R. Dyer, W. A. Engelke, E. B. Jablonski, L. J. Renz; Dept. 400, S. W. Kellogg; Dept. 715, M. L. Cole; Dept. 758, G. F. Eggert Jr., N. Montallegro; Dept. 780, C. G. Collins, I. V. Marine; Dept. 832, M. L. Larsen; Dept. 847, H. C. Leppart (two awards); Dept. 962, J. P. Masters; Dept. 974, C. W. Neal, J. D. Willingham; Dept. 985, J. D. Hamner, H. A. Kamman, E. R. Schwabel, O. A. Trowbridge; Dept. 987, F. O. Fernandez, L. O. Marine, H. R. Short.

Invention Disclosures

CONVAIR

ACKLEY—R. A. and L. J. KAMM, Dept. 142-0. Device for Simulating the Earth as Seen from an Orbiting Satellite.

CASCO—E. L., Dept. 592-0. All-Purpose Cocoon.

LEMONS—D. M., Dept. 541-0. Threading Wire in Cable (TWIC) Tool.

MOFFAT—D. W. and PAUL SLYSH, Dept. 542-0. Waveform Synthesiser.

WILSON—L. C., Dept. 596-0. Wide-Angle Monochromatic Lens System.

Retirements

CONVAIR

BELL—John H., 819-0. Seniority date April 20, 1956, retired May 31.

BLANCK—Fred J., Dept. 250-1. Seniority date May 16, 1958, retired June 7.

EPPERSON—Roy C., Dept. 389-6. Seniority date Nov. 9, 1959, retired Sept. 23, 1965.

FREEMAN—Austin Sr., 529-0. Seniority date May 1, 1950, retired June 12.

HARTLEY—Vorace H., Dept. 146-4. Seniority date June 27, 1956, retired June 7.

HENDRICKS—Harold L., Dept. 318-0. Seniority date June 15, 1954, retired June 19.

VANCE—Leone C., Dept. 389-0. Seniority date Nov. 2, 1959, retired Nov. 2, 1964.

Deaths

CONVAIR

GELLER — S. J., Dept. 817-0. Died July 4. Survivors include his wife, Sarah.

McCLURE — E. E., Dept. 587-3. Died July 4. Survived by wife, Patricia; two daughters, Patricia Jean and Marion M.

SPAIN—D. F., Dept. 401-0. Died June 15. Survived by wife, Hazel F.

In-Plant Training

ORIENTATION

NEW EMPLOYES—Educational services staff. Lindbergh Field, ext. 491. Bldg. 14 auditorium, Tuesday, Aug. 16, 8 a.m. Kearny Mesa, ext. 1931. Bldg. 17, Room 7, Monday, Aug. 1, 8 a.m.

PROFESSIONAL/TECHNICAL

RELIABLE ELECTRICAL CONNECTIONS—Educational services staff. For further information and quota call ext. 1931, Kearny Mesa.

AFTER HOURS CLASSES
San Diego Junior College

FALL SEMESTER—What subjects are you interested in? Previous on-site courses have included math for electronics, technical writing, introduction to digital computers, computer logic and circuitry, quality control and reliability, technical math, blueprint reading, numerical control, tool design, electronics, supervision. To aid in advance planning, please send AVO to Dick Forrest, zone 130-30, indicating courses you are interested in.

PROGRAMMED SELF-STUDY—A limited number of programmed tests in the subject fields of mathematics, statistics, probability, electricity, electronics, slide rule, English review, computer language and others are available in the educational services offices, Room 4, Bldg. 17, Kearny Mesa. These may be checked out for home study. Office hours 8 a.m.-5 p.m., ext. 1931 KM.

General Dynamics News

Published by General Dynamics Corporation, One Rockefeller Plaza, New York, N.Y. 10020.

Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

Convair Division's Prospects Outlined For Roger Lewis

(Continued from Page 1)

the division's technical capability and on research and development activity directed toward future new space, missile, aircraft, marine and information systems programs.

The division has been working for some time on advanced ICBM and kick stage development and ducted-fan vehicles. Under study are reusable boosters, orbital space stations, maneuverable reentry vehicles, manned and unmanned interplanetary systems, limited warfare applications and military aircraft needs.

A key role will be sought in the Apollo Applications program.

Atlas SLV-3 boosters, being lengthened for greater fuel capacity in the SLV-3A and SLV-3C configurations, will have increased operational capability for orbital and deep-space programs of the future.

Two Convair upper-stage vehicles, Centaur and the kick stage now under development, will have a number of applications in interplanetary mission. Both may be used with boosters other than the Atlas.

New applications are anticipated for the Convair-built OV1 satellites, including a number of possible subsystem applications. The OV1s can be launched by the Titan IIIC and Saturn 1B in addition to the Atlas.

Continuation of the Convair 600/640 aircraft conversion program will enable airlines to upgrade their Convair 240, 340 and 440 aircraft for modern and economical turboprop operation.

Hydrofoil boats and oceanographic buoys with a wide range of applications are now being marketed. A new market area was opened with signing of the recent contract for a large navigational sea buoy for the Coast Guard.

The division is developing a new quick reaction operation (QRO) management system that is flexible and minimizes redundant effort. Portions of the QRO system are already in use.

JULY 23 IS NEXT DAY FOR SALVAGE

Next employes' sales day at Lindbergh Field salvage yard will be Saturday, July 23. Open hours are from 8 a.m. until noon.

Personals

CONVAIR

We wish to thank our Convair friends for their help and expressions of sympathy after our son, Pfc. Michael W. Mulick, 19, USMC, was killed in action May 28 in Viet Nam.

Michael C. Mulick and family, Dept. 780-3.

* * *

Mrs. David Knutson wishes to thank the many friends at Convair for the many cards, flowers and expressions of sympathy following the death of her husband.

* * *

We want to express sincere thanks and deep appreciation to all the wonderful people at Lindbergh Field who were so kind and thoughtful during the illness and after the death of our husband and brother. Our many, many thanks.

Mrs. D. F. Spain
Terry Spain of CRA.

Births

COLE—Son, Stephen Charles, 8 lbs., 3½ oz., born April 2 to Mr. and Mrs. Vernon Cole, Dept. 250-4.

First Atlas F Missile Modified For Use in Boost-Glide Mission

Modification of the first Atlas F missile for use in boost-glide re-entry vehicle (BGRV) missions is under way in Convair division's Kearny Mesa factory under contract from the Air Force's Ballistic Systems Division.

The BGRV prototype has been equipped with a new, heavier front section. Its sustainer engine will be enclosed in a shroud and its fuel tanks, pods and exposed thrust section hardware covered with special heat protection materials.

A. E. "Red" Berndes, Convair BGRV program manager, said the modified Atlas will be delivered to Vandenberg AFB in July and will carry a dummy payload and a large amount of instrumentation for evaluation of its flight. Both its all-inertial guidance system and autopilot have been modified extensively.

The first BGRV mission has been dubbed Atlas SEEX (for systems evaluation experiment). Later flights will carry payloads being developed by McDonnell Aircraft Corp. The prototype will be launched from the ABRES-A complex at Vandenberg.

Maj. Ed Houston, BGRV project officer for BSD, and John Blyler, a member of the technical staff of Aerospace Corp., have had responsibility for the program since its inception.

John Kalogeris, Convair program office engineer who has been directing analytical studies, said extension of boost-glide reentry physics knowledge from the Atlas BGRV flights should lead to further development of hypersonic flight technology and assist in perfecting new "state-of-the-art" vehicles being developed by the Air Force.

Program office engineers Raymond Ramsower, Patrick Adamson and Richard Nichols have been assisting Berndes in developing the BGRV vehicle interfaces with associate contractors and directing design and factory modification efforts.

Convair's BGRV project and the division's entire Atlas D/E/F ABRES (advanced ballistic reentry system) programs are under the direction of W. Fenton Miller. Atlas launch vehicles have been used in the ABRES program since 1962 with many of the flights in support of Nike Zeus anti-missile technology.

Lee Ely is responsible for factory final assembly of Atlas 115-F under the direction of R. G. Daly, manager of manufacturing operations for launch vehicle programs.

Initial modification work on the 115-F vehicle was done at Air Force Plant 19, where it had been in storage.

A new semi-automatic skate welding system, designed and fabricated at Convair, was used to resistance-weld the new heavier gauge tank front section to the back half of the old tank.

Use of the skate welder made it possible to weld the tank without having to strip it of its pods, ducting, wiring tunnels, etc., so it could be rotated in existing weld fixtures. This saved the Air Force an estimated $103,000.

The skate welder moved along a circular track made from a surplus set of external vehicle skin rings with aluminum V-grooves precision machined into the inside and a gear rack added on the outside.

Electrical cable from one side of the welder's power transformer was attached to the skate and the other, to complete the circuit, run through a duct and grounded to a copper back-up bar inside the tank.

The skate welder was used to make about 10,000 welds (two rows of spot welds and one seam weld) around the tank.

Thomas Hughes of Dept. 420-9

(Continued on Page 4)

Contracts Awarded Total $70 Million

(Continued from Page 1)

terferometry system for measuring gyro and gas bearing parts.

Study of toughness of materials at cryogenic temperatures; study of response of liquid fueled space vehicles in low gravity conditions; modification of launch facilities; work on Atlas/Agena; modification of 23 Atlas missiles for re-entry program; production of modification kits for F-102 fuel tank assemblies.

Gas surface experiment for OGO-F; launch services at ETR and WTR; assessment of slosh coupling with space vehicle systems; integrated life support system support services, etc.

New Inverter Designed and Built For Use on Centaur Vehicles

(Continued from Page 1)

Charles Nulf was design draftsman for exploded-view assembly drawings and Russell Muir coordinated design support. John Pendergraft was electronics manufacturing representative and George Mayer handled machine work. All magnetics were built in the division's transformer shop.

Schaelchlin said redesign was undertaken after engineering tests showed very severe internal movements of components under vibration and other possible problem areas with the commercial inverter being used.

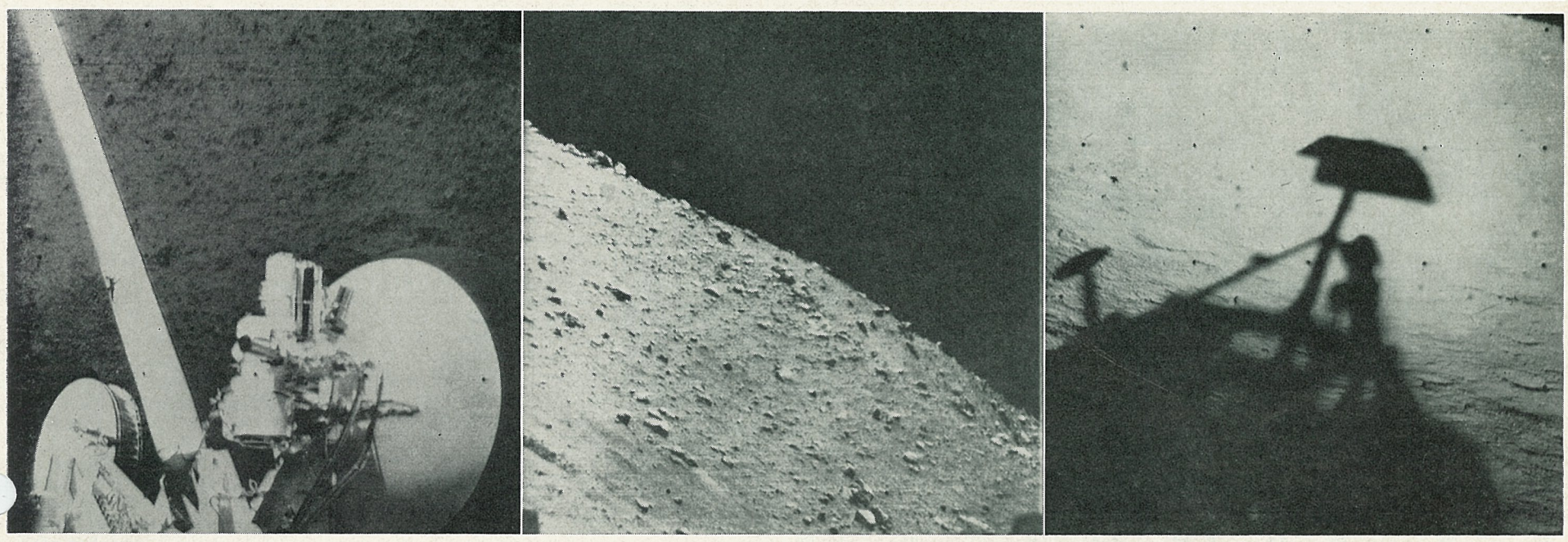
"We started with redesign concepts in March and had a prototype within six weeks," he said.

NASA-Lewis authorized Convair to produce the new inverter April 20 and the first unit was "sold off" June 29 after showing "very high reliability" in vibration, shock, thermal vacuum and electro-magnetic compatibility tests.

Dr. Abe Silverstein, director, and other Lewis Research Center officials were briefed on development of the new inverter during a recent visit to Kearny Mesa.

Schaelchlin said production aspects were given "a lot of consideration" in design of the new inverter. Although many of the internal components are "sealed in" for improved structural characteristics, all soldered joints and wiring can be inspected easily.

Kemper said the division will build one of the new inverters every two weeks. "This is a new product area with considerable potential for application in aircraft and other fields," he said.



MOONSCAPE—Surveyor 1, in self portrait at left, shows one of its three feet and parts of landing leg. Second photo shows boulder-strewn surface on moon's Ocean of Storms. (Largest rock formations on horizon may be one or two yards long and smallest fragments several inches across.) Third photo shows Surveyor's shadow as lunar night begins with shadow of solar panel at top. Atlas-Centaur placed Surveyor on moon.

U. S. Coast Guard Orders Navigational Sea Buoy

Convair division has been awarded a Coast Guard contract for approximately $340,000 for construction of a large navigational sea buoy to replace a lightship off Sandy Hook, N. J.

The buoy, 40 ft. in diameter and with a 33 ft. high superstructure and weighing 50 tons, is designed for unattended operation for a year. While on station, it will be ballasted to almost 100 tons.

Initially, the buoy will serve as an aid to marine navigation with beacon lights, fog signals and a low frequency radio beacon. It also may be adapted to record and transmit oceanographic and weather data.

Control and monitoring systems on the buoy will permit surveillance of subsystem performance from a Coast Guard command site on shore.

The buoy's power system will use propane fueled engine generators and nickel cadmium battery banks. The fog signal and beacon lights will be government furnished and will be integrated with the buoy power and control system and installed by Convair division.

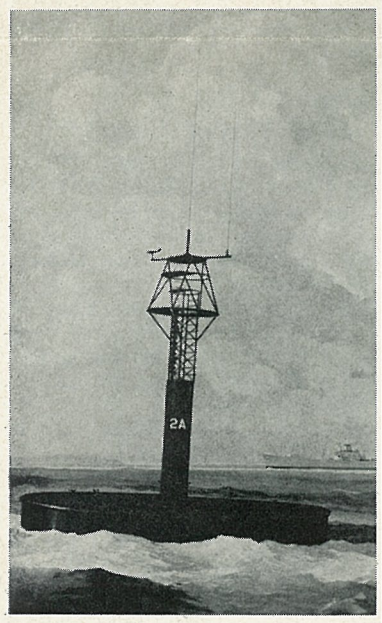
Except for changes in the superstructure, the Coast Guard buoy will be similar to the oceanographic data gathering buoy developed by Convair for the Office of Naval Research (ONR).

The Convair designed buoy hull is the result of extensive research and testing during the last four years. A prototype developed for ONR was tested successfully in 1965 during Hurricane Betsy, while moored off the Florida coast in water 1,000 ft. deep. The buoy telemetered oceanographic and weather data to shore during winds up to 110 miles per hour and in waves up to 50 ft.

Electric Boat division will construct the hull for the Coast Guard buoy in Groton, Conn., where the buoy is to be delivered to the Coast Guard. Electrical and telemetry components will be assembled and tested at Convair facilities in San Diego.

Robert Devereux is program manager and Don Moody, assistant program manager of ocean data station buoy programs. David B. Dewey Jr. is project manager for the Coast Guard buoy at Convair division's Lindbergh Field plant.

R. J. Dunn will be in charge of engineering, Clarence Strand of Convair manufacturing operations, W. S. Stroud of program scheduling and cost control and P. G. Penninger of material for Convair division. George Vetter is contracts administrator and T. A. McKearney will be in charge of Electric Boat manufacturing operations for the buoy program.



REPLACEMENT — Large sea buoy such as shown in artist's conception will replace Coast Guard lightship when built.



TRAVELERS — Convair ocean data station men, Harold Driscoll, Robert Devereux, program manager, Ralph Kosic, Stan Uyeda, board SAS jet at Copenhagen en route to Inter-Oceanographic Congress in Moscow, Russia, May 30-June 12. Over 2,000 from all parts of world attended conference.

Additional Funds For Radios Okayed

Funding of $8 million in a letter contract for the AN/GRC-106 combat radios has been received by Electronics division. This is in addition to the original letter contract of $14 million for these radios.

Production is under way on 1,800 rugged, lightweight sets classified as Standard A by the Army. The AN/GRC-106 provides initial long distance communications when ground forces enter a new area and provides radio contact with widely dispersed forces.

EB Will Research Fish Industry Drop

Electric Boat division has been awarded a $37,123 research contract by the Connecticut Research Commission for a technical and economic study of the state's rapidly-declining fisheries industry.

In addition to a study of the causes of the current decline, EB will review the geographical and seasonal abundance of commercially important marine species.

Atlas-Centaur Shipped For Next Surveyor

Convair division's Atlas-Centaur 7 (Atlas 194-D and Centaur 3-D) has been shipped from San Diego to Cape Kennedy and erected at Complex 36-A in preparation for launch of the Surveyor SC-2 spacecraft for moon landing.

The Centaur second-stage vehicle was shipped June 24 from Lindbergh Field in the "Guppy" and its interstage adapter and nose fairings three days earlier in the larger "Super Guppy" transport planes.

A C-133 aircraft transported the Atlas booster across country June 17 from Miramar NAS in San Diego. The Atlas and Centaur were mated on the launch pad June 29.

"AC-7 will be the second operational Surveyor launch," Deane Davis, Centaur manager, said. "We expect it to be every bit as good as the AC-10 launch."

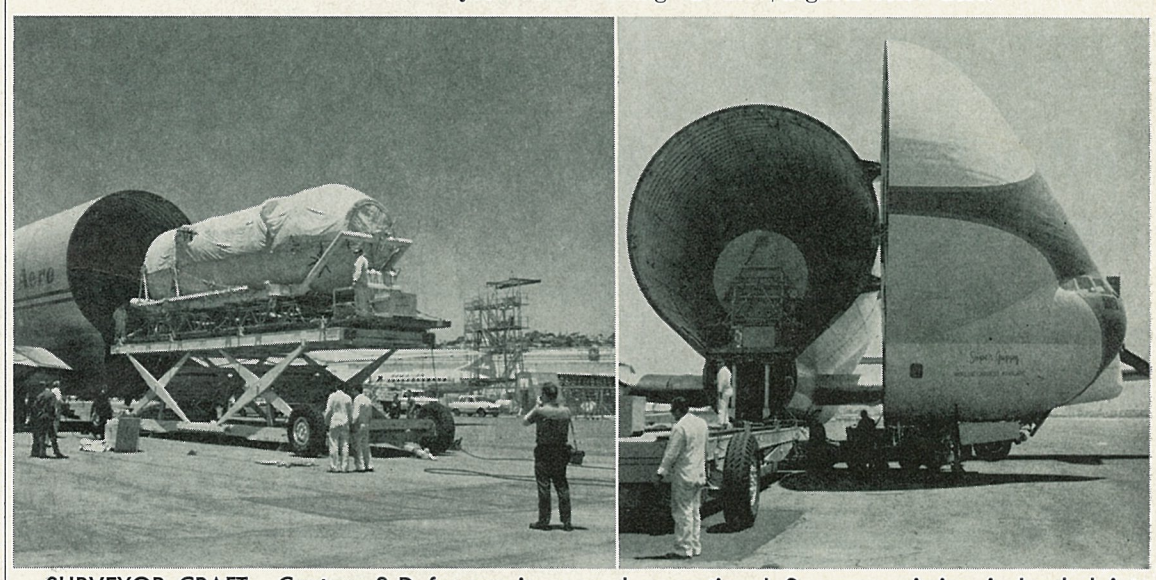
The AC-7 launch is planned as a "duplication" of the highly successful AC-10 flight but with the Surveyor SC-2 making a soft landing several hundred miles east of the SC-1 location. Officials initially were contemplating a possible landing site at zero latitude and zero longitude on the lunar surface.

Surveyor SC-2, scheduled to be delivered to the Cape within the next few days, will carry two cameras — one to photograph the lunar surface on its landing approach and the other for survey photography after landing.

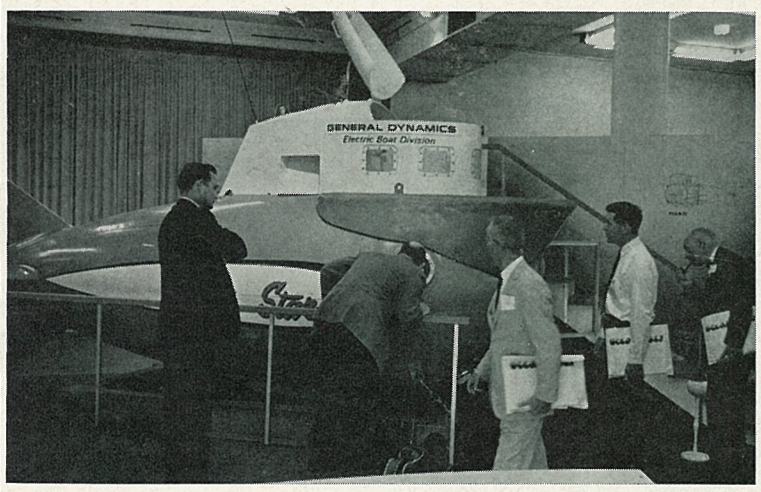
E. E. "Barry" Barringer is Convair division project engineer for AC-7 and Daniel Sarakon again will serve as launch conductor.

Maurice R. Clark is assisting with Surveyor integration, Robert F. Maxey with scheduling and Richard W. Eberhardt with test support.

Surveyor SC-1 responded to more than 100,000 radio commands and relayed 10,335 photographs of the lunar surface before being shut down June 14 at the beginning of the two-week lunar night during which temperatures dropped to more than 250 degrees below zero.



SURVEYOR CRAFT—Centaur 3-D for use in second operational Surveyor mission is loaded into "Guppy" transport plane, left, at San Diego for flight to Eastern Test Range. Its interstage adapter and nose fairings made cross-country flight in larger "Super Guppy," right. Launch of Surveyor SC-2 is tentatively scheduled for August.



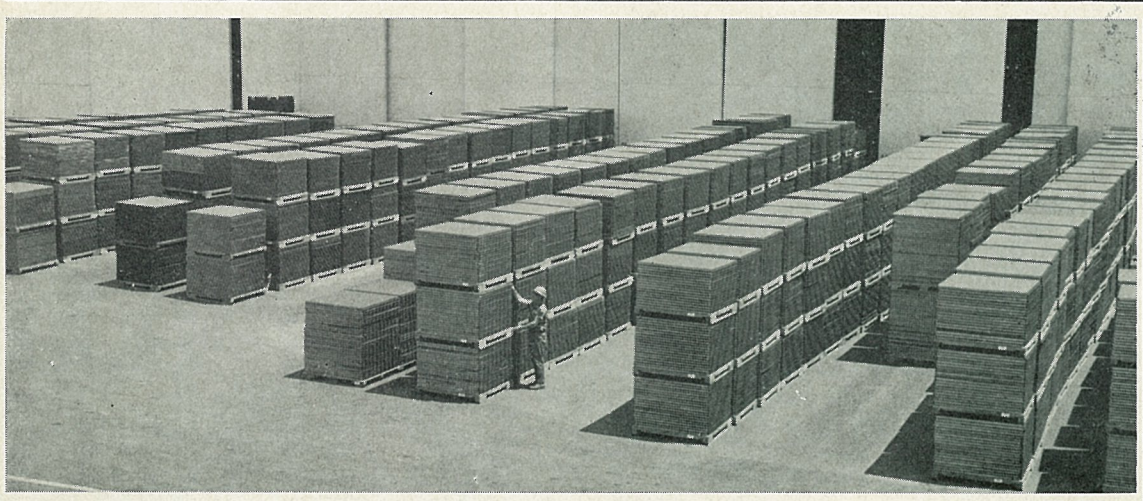
IN THE LIMELIGHT—General Dynamics exhibit at Marine Technology Society show in Washington, D.C. late last month included Electric Boat's Star II research submarine, Electronics division's hydroacoustic systems and Convair's buoy. Coast Guard held press conference, addressed by LCdr. Hal Olsen, USCG, in connection with latter project.

People Mobility

Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the Company.)

H. WALTER CARRELL (1941) from Convair division to Pomona as manager of compensation and personnel development; **ROBERT B. GOWER** (1955) from Stromberg-Carlson, Rochester to labor relations representative, Convair; **FRANK H. JACOB** (1955) from Pomona to quality control senior staff, Canadair, Ltd.; **BILL R. MIALE** (1955) from Electronics, San Diego to program analyst, Convair; **JOHN C. WILSON** (1954) from Stromberg-Carlson, Rochester to Electronics, Rochester; **EUGENE CEHELSKY** (1957) from Stromberg-Carlson, Rochester to purchasing material inspection, Electronics, Rochester; **LYNOTT W. WILLIAMS** (1955) from Convair to plant engineering, Electronics, Rochester; **PAUL J. LYNCH** (1942) from Convair to special projects, Fort Worth; **DON E. FRANKS** (1961) from Convair to aerospace model test, Fort Worth; **EDWIN G. BANNING** (1956) from Electric Boat to procurement, Fort Worth; **FLOYD D. HARKINS** (1951) from Convair to Fort Worth (Edwards).



MAT STACKS—AND STACKS—Quarter of million square feet of airfield landing mats fabricated at Convair await shipment to Dyess AFB, Texas, where they will be laid as part of a landing field for testing under actual aircraft operations. Convair is producing lightweight matting for U.S. Army under subcontract from Kaiser Aluminum and Chemical Sales, Inc.

Buoy Bravo Destined For Mooring Off Bermuda in Deep Water Tests

"Bravo," Convair's first oceanographic data gathering buoy prototype developed for the Office of Naval Research, goes into its second year of testing within the next week when it will be located on-station off Bermuda for its first deep water tests. It is scheduled for mooring July 16.

It will be moored in Atlantic Ocean waters 14,000 feet deep 18 miles west of Tudor Hill for a series of tests to measure mooring tensile loads from surface to bottom, Robert Devereux, Convair ocean data station program manager, said.

During the coming months measurements will be taken at various mooring line lengths, ranging from a scope of one and one-half the depth of the water to a line shorter than the mooring depth to test distribution of tensile loads by means of dynamometers attached along the length of the line.

Measurements taken during this test series will establish the optimum mooring line length to make the buoy as stationary as possible and yet allow it to withstand forces of wind and waves.

Overseeing preparation for the tests are Stan Uyeda, in charge of Bravo's Atlantic Ocean testing, Ralph Kosic, and Charles McIntyre. The buoy, which spent most of last year in the Gulf Stream off the coast of Florida, was overhauled for its present assignment at Miami Fla. It was towed to Bermuda's Ireland Island late last month for final outfitting.

Convair's second buoy prototype, "Alpha," now is being equipped at the Convair Harbor Drive Test Site for full-scale towing tests in San Diego Bay later this summer. It will go on-station off La Jolla shortly after the first of the year.

A second Greyhound bus is being converted at Convair into an oceanographic data acquisition mobile station for use during Alpha's coming test series. The mobile station will be driven all the way up the West Coast to Anchorage, Alaska, stopping at regular intervals to interrogate the buoy. The experiment will determine the validity of prediction of performance of the north-south radio path, mostly over water, up to 2,500 miles.

In announcing recent personnel assignments within the program, Devereux said that Jack J. Beckman has been named assistant program manager responsible for Office of Naval Research projects. Beckman joins Don G. Moody who was appointed assistant program manager of ocean data station buoy programs early this year, succeeding Ken Samples.

Centaur Final Assembly Wins Craftsmanship Honors in May

Centaur final assembly (Dept. 972) at Kearny Mesa won Convair division "Craftsman of the Month" honors for the San Diego area in May with a quality index of 111.1.

W. E. Magnuson, chairman of the "Convair Craftsmanship" program, said Dept. 972 had .99 defects per 100 manhours during the last three months, contrasted with an average of 1.56 for the past six months.

Runner-up in the San Diego area competition was metalbond, plastics and trim Dept. 019 at Lindbergh Field with a 110.6 quality index. A quality index of more than 100 indicates improvement.

Award winners at both the Eastern and Western Test Ranges for the month were scoring their third consecutive monthly wins.

The WTR win was the seventh for ABRES-A since it entered the competition in 1964 and the ETR win was the fourth for Dept. 979's operations support maintenance and shop personnel since they began competing last year.

ABRES-A had a 119.1 quality index for the month with .004 defects per 100 manhours for the past three months and .011 for the past six months. ETR maintenance and shops had a 130 quality index with a perfect .000 defect record for the past three months and .011 for the six-month period.

Letters of commendation will be provided personnel in each of the three winning departments.



EASTERN CRAFTSMEN—Operations support maintenance and shop personnel have won Convair Craftsmanship honors for the Eastern Test Range for three straight months. Jack L. Bowers, Convair division general manager, is shown congratulating Paul Dudney and W. M. McClure after presenting award. Also present were G. L. Hansen, vice president-launch vehicle programs, and Kenneth Newton, ETR base operations manager.

Con-Trib-Club Votes Donations

Convair Employes' Con-Trib-Club Committee in meetings last month allocated $8,650 for assistance to nine community service organizations in San Diego County.

A $2,000 gift was approved for the San Diego Mental Health Association with $1,000 earmarked for a Friendship Center, $500 for patient services and $500 for administration costs.

Family Service Associations were granted $1,200, with $550 to go to the San Diego chapter, $150 to the Imperial Beach chapter, $200 to the Foothills chapter, $100 to the San Dieguito chapter and $200 to the Palomar chapter.

Volunteers of America will receive $1,000 for mortgage payments, the Camp Fire Girls $1,000 to be applied toward cost of building a cabin at its Camp Wolahi facility and Episcopal Community Service $850 to be applied toward cost of purchasing a ¾-ton stake truck from the Convair salvage department and cost of a general tune-up and tires for the vehicle.

A grant of $1,000 was made to the USO for its Viet Nam Emergency Service Appeal, $600 to the Tuberculosis and Health Association of San Diego County, $500 to the San Diego chapter of the Southern California Diabetes Association for its summer camp program, and $500 to the John Tracy Clinic educational center for pre-school deaf children.

Magazine Features Lines Using 600/640

The May-June issue of the Convair Traveler, highlighting airlines using the Convair 600/640, was incorporated in its entirety in Flight Magazine's 17th annual local service airline issue.

The Traveler, periodical published by Convair technical services for operators of Convair aircraft, outlined history and operations of the five local service and regional airlines now operating Convair-Liners converted to turboprop version with Rolls-Royce Dart engines. The cover displayed insignia in color of the airlines — Caribair, Central Airlines, Trans Texas Airlines, Hawaiian Airlines, and Martin's Air Charter of The Netherlands.

Dept. Representatives Named To Push 'Do Good Work' Goals

Six representatives of major Convair division departments have been named to assist in implementation of new objectives in the division's expanded "Do Good Work" and "Convair Craftsmanship" program.

They are G. M. Loudermilk, operations; F. R. Lee, launch vehicle programs; W. R. Bruce, aircraft programs; R. A. Evans, industrial relations; E. D. Heller, finance; and E. G. Callard, reliability control.

Each department function or section is to use "management by objective" techniques under the expanded program. Realistic and meaningful goals will be established and progress plotted on wall charts.

"The Convair team is a great one but to maintain our position in the future we must make the team even better—and we will," Jack L. Bowers, division general manager, said.

"Superior performance by every employe will benefit each of us, our Company and our country," he said. "Only by individual personal dedication can we maintain the excellence required for leadership in our competitive environment."

Department representatives will assist in determining goals or objectives and in measuring and reporting progress. A simple "Convair Craftsmanship Reporter" has been designed for monthly program status reporting.

Under the expanded program, each employe will be asked to sign a pledge indicating he will "strive to attain the goals and achievements of the program" to the best of his ability. A gold Craftsmanship participation pin will be given to each employe pledging support.

Site, Date Changed For Mgt. Club Picnic

Date of the Convair Management Club annual summer picnic has been changed to Sunday, Aug. 7. The family event will be held at Pecan Park, instead of the CRA Missile Park, as formerly announced.

The 11 a.m. to 6 p.m. affair will feature games and contests, drawings for prizes, free ice cream, soda pop, and beer.

Families will bring their own picnic lunches.

Tickets, at only $1 per family, are now available from Management Club Boosters at all locations.

Operations departments under John Hopman and Frank Blair are sponsoring with Gerry Cox, Clyde Medearis, Mike Alianelli in charge of arrangements.

Tickets Available For 'Funny Girl'

A limited number of choice seat tickets are available at $7.50 for General Dynamics families for the 8:30 p.m. July 28 Civic Theater presentation of "Funny Girl." A few balcony tickets at $3.75 also are available.

To reserve tickets, phone Mary at KM ext. 3610, Inez at KM ext. 1111, Betty at LF, ext. 430, Joyce at LF, ext. 580, Juanita at Stromberg-Carlson ext. 94 or Millie at Electronics, San Diego, 1757.

Gary Gonlag Heads Budget Institute

Gary J. Gonlag, budget supervisor in Dept. 194-0 for Convair division, has been elected president of the San Diego Chapter of the Budget Executives Institute.

Retrorocket Contract OKd

Convair division has been awarded an $883,500 contract for manufacture of 20 high-impulse retrorocket systems (HIRS) units, for the Air Force Ballistic Systems Division.

The HIRS units will be used to alter the trajectory of Atlas booster vehicles following payload separation in Air Force advanced ballistic re-entry system (ABRES) program launches. Atlas boosters used in the programs are launched down the Western Test Range from Vandenberg AFB.

Delivery of the HIRS units covered by the contract will begin in October. Final assembly and checkout will be at Kearny Mesa.

Hugh Campbell is program office representative and William Barth, manufacturing operations representative, for the program.

Convair engineers developed the HIRS unit concept for the Air Force in 1962 and the division has manufactured more than 30 similiar units for use in previous ABRES programs.

Computing Chapter Elects Chas. Gutzler

Four members of Convair Dept. 595-0 (scientific programming) have been installed in key offices in the San Diego Chapter of the Association for Computing Machinery.

Charles Gutzler, research group engineer and supervisor of guidance and trajectory programming, is chairman; John Logan, vice chairman; John Fountain, treasurer, and Lee Trammell, secretary.

Convair Daughter Joins Peace Corps

Candace Way, daughter of Convair Dept. 400's Ralph Way, has been accepted as a Peace Corps trainee and is in training at Southwest Texas State College, San Marcos, Texas.

If successful, she will complete training at Puerto Rico and probably be assigned to Costa Rica as a physical education teacher. She completed her junior year last month at San Diego State as a history major.

Bridge Fans Plan Master Pt. Party

CRA bridge players will meet July 22 at the CRA Clubhouse for a specially-scheduled Master Point party.

Winners in Master Point play July 1 were Joan and Fred Nickerson, Jim Stephenson and Al Buggelle.

Mr. and Mrs. H. R. McCulough and Vi Thomas and Sally Ishihara won in regular play June 24.

Another Employes Parking Lot Added

Parking facilities at Lindbergh Field plant have been expanded with the acquisition of another employes' parking lot.

The former private pay lot at the corner of Sassafras and Kettner, east of Bldg. 19, has been obtained by the division for employe use. Access is from Sassafras St.

First Atlas F Missile Modified For Use in Boost-Glide Mission

(Continued from Page 2)

designed the welding system to specifications of Robert Bruce, a tool development engineer in Dept. 403-3. It was built by John N. Pasich of jigs and fixtures Dept. 451-0 with assistance from the Dept. 452 tool and die shop. Weld quality tests were performed by Depts. 491 and 758 with process control acceptance by Dept. 141-2.

Bruce said the skate welder was designed with "growth capacity" and, with modification, can be used for welding on tapered surfaces of launch vehicles. The "old nose" of Atlas 115-F will be used in testing welds on such surfaces.

Horsemen Will Vie In All-Day Show

Junior and adult horsemen will vie in an all-day open horse show sponsored by the CRA Riding Club July 17 in the CRA ring, Kearny Mesa.

The show is approved by Horsemen's Executive Council, Southern California Gymkhana Association, and San Diego Junior Horseman's Association, said Boyd Spencley, show manager.

Equitation events will start at 8:30 a.m. and gymkhana events in the afternoon. Entry fee for equitation is $2 per person in each class; gymkhana entry is $1.

Mrs. Nadine Gonzales will be judge.

For information contact Spencley at KM ext. 2681, or home phone, 276-3954.

Johnson to Direct CRA Speech Clubs

Ezra Johnson, CRA commissioner-at-large, has been assigned responsibility for CRA-sponsored speech clubs, including Toastmaster and Toastmistress clubs, J. K. Field, chief of employe services, announced at the June CRA Council meeting.

Johnson, long active in recreational programs at Convair and the former Astronautics division, was a charter member of the ARA Council as Gun Club commissioner and served as vice president in 1959. He was named "Man of the Year" for directing development of the Kearny Mesa recreational area, now known as the CRA Missile Park.

Only Two Days Left To Join Bus Jaunt

Just two days remain to reserve a seat for the CRA-sponsored bus trip to the July 24 double-header pitting Los Angeles Dodgers and New York Mets in Dodger Stadium.

Last-minute reservations must be in by this Friday. Sign-ups can be made at CRA Clubhouse, employe services outlets, or the engineering mailroom, Bldg. 51 third floor, Lindbergh Field.

Entire cost for transportation and game admission is $5.50. Buses will leave Bldg. 19 north parking lot at Lindbergh Field and by the flagpole in front of Kearny Mesa Bldg. 2 at 9:30 a.m.

Fish Club Members To Hold Steak Fry

CRA Fishing Club members will furnish their own steaks for a steak fry next Tuesday evening, July 19, 6:30 p.m., at Pecan Park. A meeting will follow at 7:30 p.m.

Families are asked to furnish potluck dishes to supplement steaks.

All anglers, not already members, are urged to join the club to be eligible for monthly contest prizes. Dues are only $1 per year per family.

Deborah Graham, 12, daughter of George Graham, Dept. 149-9, won top prize of a camp kit for a 6-lb. covina in the Salton Sea derby.

Adventurers Slate Two Hiking Movies

CRA Adventurers will see a double-feature movie at their July 20 meeting, 7:45 p.m., in CRA auditorium, KM.

The "Skyline Hike Over the Muir Trail," and "A Family Afoot Through Alaska," documenting a 300-mile family backpack hike through Yukon territory, will be shown by Paul Cooper of the Sierra Club and Fish and Game Association.

The CRA group will not schedule a meeting in August because of vacations, however a backpack excursion is planned into the High Sierra for experienced hikers the last two weeks of the month, Aug. 15 to 26.

Joe Quijada, trip leader, said the group will start their hike from Taboose Pass pack station, near Big Pine on Hwy. 395. They will take two days to climb through the pass, gaining 6,000 feet elevation in 9 miles. Mules will be hired at $10 each to pack foodstuffs in. A primitive base camp will be set up at the destination. Details will be outlined at the July 20 meeting.

All interested in making the trip are asked to call Quijada at his home phone, 274-0883.

Baseball Drawing Set For July 29

Last CRA baseball drawing of the season will be July 29 for Padres' home games in August and September.

Deadline for entries is July 27.

Winners will get free tickets to games on Aug. 1 through 4 with Indianapolis; Aug. 5 through 8, Tulsa; Aug. 22-25, Oklahoma City; Sept. 1-5, Phoenix.

Entry slips must include name, division, plant, department number, shift, plant phone extension. Only one entry per person is allowed.

Baseball drawing boxes are at all employe services outlets, CRA Clubhouse, engineering mailroom, third floor of Bldg. 51 at Lindbergh Field, and H. C. Medearis' office, Bldg. 3 mezz, Plant 19.

Tickets to Charger Home Games on Sale

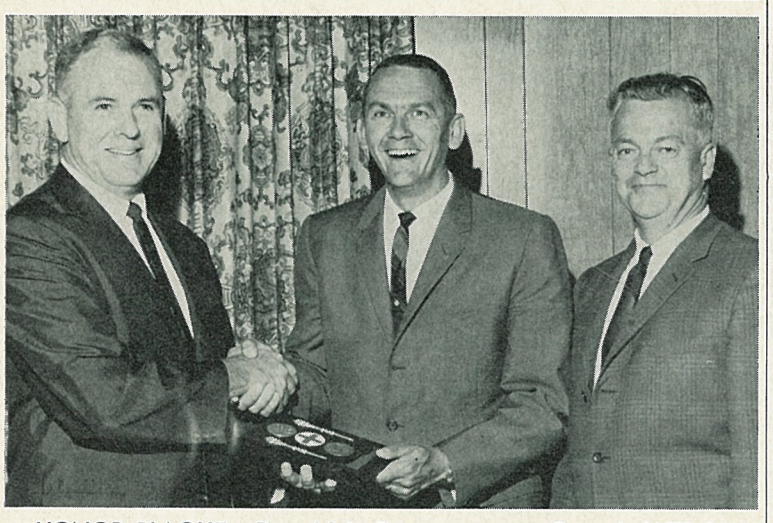
Season tickets to Chargers' home league games go on sale this week at greatly reduced price for General Dynamics football fans.

Price of good reserved seats on the west side, upper deck, aisle 13, for all seven games is $17.50, a saving of $7 over individual ticket price.

Tickets will be sold on a first-come basis at all Convair and Stromberg-Carlson sales outlets.

GADDYS COLLECT FAIR RIBBONS

Mary Gaddy, wife of A. L. Gaddy, Convair Dept. 250-1, won three ribbons for culinary creations at the recent San Diego County Fair. However, all the skill is not on the distaff side, for Gaddy himself won a ribbon for a chocolate cake at the earlier Eastern San Diego Fair.



HONOR PLAQUE—Donald L. Fagan, center, Convair WTR base operations manager, receives Vandenberg AFB Safety Society honor plaque presented to Convair for outstanding achievement in accident prevention last year. Lt. Col. James W. Carothers, left, society president, made presentation at first annual safety achievement awards dinner as Glen Berg, Convair safety engineer at Vandenberg, looks on.

Bill Kenney Scores Two Holes-in-One

Bill Kenney of Centaur configuration management (Dept. 964-2) did the "impossible" June 23 when he shot two holes-in-one in night league play on the Mission Bay golf course.

Kenney made his first hole-in-one on the seventh hole at 145 yards and repeated the performance on the 12th hole at 155 yards. Bob Mitchell of Centaur release group was his playing partner.

Kenney has been playing golf for 35 years and had shot four hole-in-ones previously. He at one time held five course records, three in Indiana, one in Michigan and one in Ohio.

Wives Slate 'Day at Races'

Convair Wives will have a day at the races on July 27 when they will attend the Del Mar meet en masse.

One of the day's races will be named in honor of the Convair Wives Club and Edna Erwin, club president, will present the floral tribute to the winner.

Thirty-five seats in the Club house Terrace have been reserved for club members, their husbands and friends. Tickets at $2.20 each for admission and reserved seats may be purchased from Mrs. Willard Ohland, 181 Minnesota Ave., El Cajon 92020.

The group will meet at Del Mar track at 1:30 p.m.

For further information call 442-5714 or 583-2868.

The regular monthly potluck, ordinarily held the fourth Wednesday, has been changed to July 20 to avoid conflict with the race event. Members will meet at 10:30 a.m. in Room C, CRA Clubhouse.

JR. RIFLEERS PLACE IN PRONE TOURNEY

Young marksmen of Convair Junior Rifleers garnered several places in the Southern California Junior Rifle League's annual Camp Perry fund-raising prone tournament June 25 at El Monte, in spite of tricky wind conditions.

Regular Gold Squad members, Richard Ellis and David Farrelly Jr., in Team 1 placed fourth expert over the DeWar course. Dave also took second marksman in Match 1, third marksman in Match 2, and first marksman in Match 3. Richard finished sixth, master class, in the aggregate and also placed on the eligible list for the national matches at Camp Perry, Ohio.

Susan McKee, 12, was ninth in girls' marksman class and fourth in sub-junior girls' class. Bill Sutherland, 13, placed fifth, unclassified; Jim Allen, 13, 12th, unclassified.

Gold Squad instructors, Ivus Ellis and Dave Farrelly Sr., coached teams and individual contestants. Mr. and Mrs. Dick McKee helped with statistics.

Mgt. Club Linksmen Sign For Area Meet

Management Club golfers may sign now for the first NMA Western Division golf tournament sponsored by the San Diego Council Aug. 27-28.

Play in the 36-hole match will be over Cottonwood and Torrey Pines courses.

Low net will win an expense-paid trip to Laurel Valley Country Club, near Pittsburgh, Pa., for play-off with winner of the NMA Eastern Division tourney.

Trophies and gift certificates in each flight will be awarded at a barbecue Aug. 28, 7 p.m., at Cottonwood.

Entry fee, including greens fee, is $15. The barbecue is $3.50 per person.

Gerry Cox, Convair Dept. 002-0, is taking entries at Lindbergh Field ext. 1650.

CRA Calendar

(For information on CRA activities call CRA Headquarters, Kearny Mesa, ext. 1111. Deadline for copy for the next issue of GD/NEWS is July 20. Call ext. 3322 KM, or 1071 LF.)

★ ★ ★

ADVENTURERS—Film showing July 20, 7:45 p.m., CRA Clubhouse. Open to public, free of charge. Pack trip into High Sierra Aug. 15-26. Call Joe Quijada, 274-0883, by July 20.

BADMINTON—Play Mondays, 7-10 p.m., Federal Bldg., Balboa Park.

BICYCLE CLUB — Ride July 16 from Rancho Santa Fe fire station to Oceanside for 10-speed bikes only. Depart 9 a.m.

BRIDGE — Special Master Point night July 22, 7:30 p.m., CRA Clubhouse.

CAMERA CLUB — Meeting July 17, 7:30 p.m., Photo Arts Bldg., Balboa Park.

CERAMICS — Group meetings Tuesdays and Thursdays, 7-10 p.m., CRA Clubhouse.

CHESS — Play each Wednesday, 7:30 p.m., CRA Clubhouse.

DELTA DIVERS — Meeting tonight (July 13), 7:30 p.m., CRA Clubhouse.

FENCING — Workouts and instruction Fridays, 7:30-10:30 p.m., YWCA, 10th & C Sts.

FISHING CLUB — Steak fry July 19, 6:30 p.m., Pecan Park.

GARDEN CLUB — Annual summer flower show July 31, Floral Assoc. Bldg., Balboa Park.

GOLF — Entries open tomorrow through July 22 for CRA tourney July 30-31, Coronado. Call ext. 1111 KM for starting times.

ICE SKATING — GD skate nights Thursdays, 6:15-7:45 p.m., Mission Valley Ice Arena.

PISTOL CLUB — Club shoot July 24, 9:15 a.m., SD Police Range, Federal Blvd. and Home Ave.

RADIO CLUB — Meeting July 21, 7:30 p.m., Harbor Drive club headquarters.

RIDING CLUB — Open horse show July 17, CRA horse ring. Meeting tonight (July 13), 7:30 p.m., CRA Clubhouse.

SCULPTURE—Workshop sessions, Mondays, 7:30-10:30 p.m., CRA Clubhouse.

SPORTS CAR CLUB — Meeting tonight (July 13), 7:30 p.m., Convair executive dining room, Pacific Hwy.

TENNIS—Trophy award night July 18, 7:30 p.m., CRA Clubhouse.

TOASTMASTERS — Convair Toastmasters No. 3745 meet Wednesdays, 4:15 p.m., Dynamic Toastmasters No. 467, Thursdays, 4:15 p.m., both in CRA Clubhouse.

TOASTMISTRESS CLUB—Serra Mesa Club meets first and third Mondays, 7:30 p.m., CRA Clubhouse.

TRAILERS — Travelers outing July 30-31 to Oak Springs Ranch. Call Virg Marshall, ext. 3541, KM.

WIVES — Wives' Day at the Races July 27. Call 442-5714 or 583-2868 for information. Monthly potluck changed to July 20, CRA Clubhouse.

Color Guards Ride In Two Parades

CRA Riding Club's senior color guard, composed of Boyd Spencley, David Watson Sr., and Conrad Nash, rode in the annual Imperial Beach parade June 26. The junior color guard took part in the Fourth of July parade at Coronado. Young riders were Rose Marie Pena, Charlann Harmer, Sheila Payne, Gayle Dvorak, Judy Watson, and Jan Kreis.

Members entered in the National Horse Show at the Del Mar Fair were Bob and Marjory Riding and daughters, Julie and Holly, Susan Harmer, Sherry Special, and Mickey Donahoo.

Few Openings Remain For Mexican Trip

Last-minute reservations will be taken for the annual GD summer tour to Mexico City, Acapulco, and other Mexican cities, Jim Hardison, tour conductor, said.

The few openings remaining for the Aug. 13-28 train trip will be filled from the first calling. Reservations must be closed soon, Hardison said, so that accommodations will be assured.

Entire cost of $385 a person pays for all transportation, hotel rooms, most meals, sightseeing admissions.

Call Hardison at his home phone, 276-5805, as soon as possible.

Discount Offered For 'Blue Max' Show

Discount tickets for the 8 p.m. July 18 and 19 showing of "The Blue Max" at the Capri Theatre are available for employes and families at Convair, Stromberg-Carlson and Electronics-SD employe services outlets, CRA Clubhouse and the Bldg. 51 engineering mailroom at Lindbergh Field.

The tickets, reflecting 20 per cent discount, will be $2 for loges and $1.60 for general admission.

Dave Bennett Wins Top Singles In CRA/Mgt. Club Tennis Tourney

Dave Bennett upset top-seeded Tad Yamaguchi of General Atomic in the master's division of the CRA/Management Club-sponsored tennis tourney held over three weekends at Mesa College and Morley Field courts.

Netsters from Convair, General Atomic, and Naval Electronics Lab were among the 120 competing in 10 events.

Some of the finest tennis of the tourney was played in advanced singles and doubles matches, said CRA Commissioners Ray Hardy and Bob Herold.

Larry Chambers (Dept. 954-0) broke a five-year jinx to defeat John Cannau (Dept. 966) in straight sets, 6-4, 6-2, but was downed in advanced singles finals by I. Rothmuller of NEL, 6-4, 6-4.

Dennis Sealey (Dept. 587-1) and Stan Griffin (Dept. 508-0) amazed forecasters by wiping out their opponents in eight straight games to win the 40-game advanced doubles round robin by one game.

Dan Hamlin (Dept. 596-0) successfully defended his intermediate class title by beating Mike Griggs (Dept. 596-0), 6-2, 6-2.

Amy Jarlett outpointed the field in the ladies' intermediate singles round robin to win over Ruth Bennett.

NEL's G. Calvin and I. Neff took first place in the men's intermediate doubles. Ed Bennett and his youngest son, John, finished in runner-up spot.

C. Lisle of NEL and daughter, Karen, walked away with the intermediate mixed doubles, outpointing Don McClarren (Dept. 565-1) and Flora Cannau.

Jim Jobe (Dept. 830-0) swept the novice class by winning the singles round robin and placing second in the doubles with his son, Mike. Rick Schultz, son of Dutch (Dept. 845-3), was singles runner-up. D. Smith and R. Dunlop won the doubles.

Links Tournament Slated at Coronado

Starting times for the CRA links tournament at Coronado July 30-31 will be assigned from tomorrow (July 14) through July 22, Commissioner Ken Wulfemeyer said. Call CRA Clubhouse, ext. 1111, Kearny Mesa.



HIGH PERFORMER—Convair 600 turboprop version, powered with Rolls-Royce engines, has received FAA certification at shorter takeoff and landing distance with higher gross weight. White and blue craft, snapped on recent test flight, will be converted to executive configuration for General Dynamics Corporation. It will be used to demonstrate aircraft performance and executive configuration for sales purposes.

High Performance Version of 600 Earns FAA Approval, on Schedule

Convair's high performance version of the Convair 600 turboprop transport has received Federal Aviation Agency certification following completion of an extensive flight improvement program.

FAA certification of the improved Convair 600 was awarded June 27 — on schedule to the day! The June 27 date was set six months ago by the Convair 600/640 program office.

The Convair 600, uprated version of the Convair-Liner 240 powered by Rolls Royce Dart engines, has been recertified for shorter landing and takeoff distance at higher gross weight than the original 240.

Takeoff distance is reduced to 4,270 feet with a 45,000-lb. gross weight — 2,500 lbs. more than the original 240. Landing distance is certified at a mere 4,026 feet with 44,000-lb. gross weight — 4,000 lbs. more than the 240.

A major improvement over the initial version of the Convair 600 came from a reduction in the engine exhaust duct area, adding 100 pounds thrust to each turboprop engine. Braking was improved by addition of a Hydro-Aire anti-skid system.

"We now have confirmed the excellent performance which was designed into the plane," J. B. Hurt, 600/640 program manager, said. "At the same time, the aircraft is working out extremely well in service.

"This improved performance, in addition to the reputation the uprated versions have established with airlines operators, assures a bright future for both the Convair 600 and 640."

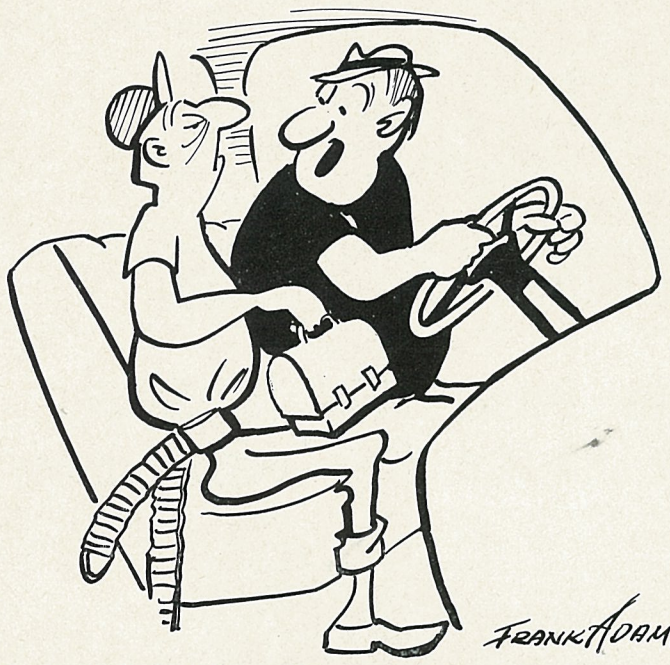
The Convair 640, uprated turboprop version of the Convair-Liner 340/440 series, was certified with performance improvements by the FAA on April 26 of this year.

The Convair 640 now is certified for takeoff in only 5,035 feet, or 4,806 feet with propellers four inches larger in diameter. This is with 53,200-lb. gross weight.

The 640 is certified for a landing distance of only 4,182 feet with 50,670-lb. gross weight using the anti-skid braking system.

Optional features offered operators include the larger propellers, an automatic water-methanol system, and reversible pitch propellers for better runway control.

Convair has contracted for conversion of 54 Convair-Liners 240, 340, and 440 to Rolls-Royce turboprop engines for commercial airline operators in the United States, Hawaii, Puerto Rico, and Holland. Conversion of 28 of these aircraft is being done at the Convair Service Center at San Diego.



"I understand that diet you're on really works!"

Kit For F-111 Model Expected on Market

A 1/72nd scale F-111 model kit is scheduled to go on the market soon.

Made by Revell, the model can be built as either the F-111A or F-111B.

Features include operating variable-position wings, retractable landing gear with movable wheels, detachable escape module, movable stabilizers, removable nose and detailed radar scanner, clear cockpit canopy, two pilot figures, official Air Force and Navy marking and collectors three-view drawing.

F-102 Trans-Pacific Flights Earn Award

First trans-Pacific flight of F-102s earned a USAF Outstanding Unit Award for the 82nd Fighter-Interceptor Squadron, according to the Air Force Times of June 29.

F-102s, equipped for air-to-air refueling, were flown from Travis AFB, Calif., to Naha Air Base, Okinawa.



SECURITY MANAGERS—Reviewing General Dynamics division security programs at New York Headquarters last month were, seated, from left: R. S. Benton, Pomona division; George Higgins Jr., Corporate director of industrial security; Algie A. Hendrix, Corporate vice president; S. R. Sharp, Convair. Standing, from left: R. W. Read, Electronics; J. L. Budros, Corporate director of compensation and personnel development; J. T. Iles, General Atomic; R. J. O'Grady, Electric Boat; I. B. Hale, Fort Worth; P. Lodwick, Canadair Ltd.; V. Master, Corporate Headquarters; K. W. Goetter, Liquid Carbonic; W. F. Donegan, Quincy; E. V. McCale, Stromberg-Carlson; E. J. Tucker, Corporate director of internal audit.

Five-Division QC Meeting Hosted by Electric Boat

A score of General Dynamics quality control specialists from five divisions, Corporate Headquarters and Canadair, Limited, met June 16-17 at Groton, Conn., for the quarterly GD Procurement Quality Control Committee meeting to further plans for standardization of vendor and subcontractor quality control requirements to be used by all divisions.

O. R. Goode, quality control manager at Electric Boat, host division, welcomed the group and commented favorably on its standardization goals.

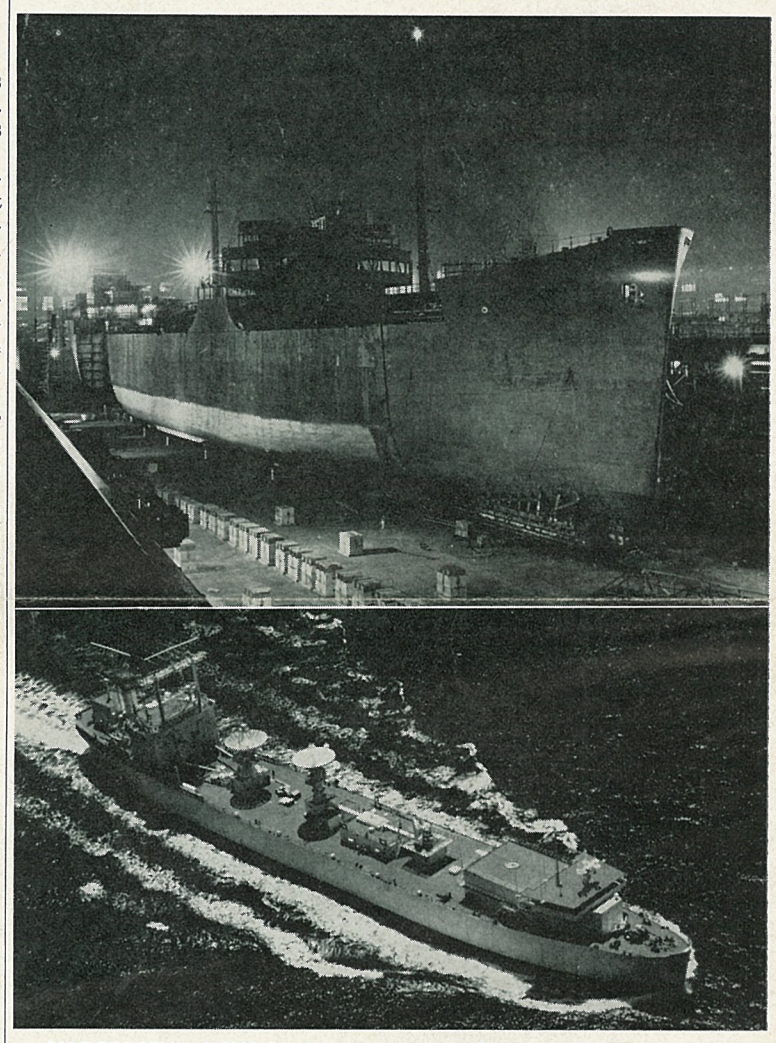
R. J. Creamer of Pomona reported on a standard supplier rating system and proposal for standardization of supplier quality control clauses. D. W. James of Fort Worth division reviewed progress on the standard supplier quality control document which is slated for completion by the next committee meeting this fall.

Sam Braun of Convair presented advantages of a training program for personnel involved in supplier surveys and nondestructive testing. B. E. Justice of Corporate quality assurance and reliability outlined Corporate-level legal aspects of the standard industry survey.

The committee toured Electric Boat facility and inspected the Polaris submarine, Francis Scott Key, now nearing completion.

Attending were Justice, Corporate Headquarters; Braun and Joe Marcella of Convair; James and R. C. Smith, Fort Worth; Creamer of Pomona; H. T. McClain, Electronics-Rochester; R. F. Martin, Electronics-San Diego; G. V. Lanford, Stromberg-Carlson, Charlottesville, Va.; P. T. Bonnet and John Morgan, Stromberg-Carlson, Rochester; F. P. Heinemann, W. D. Shipman, M. J. Hallisey, W. P. Rausch, Electric Boat; J. E. Tormey and R. I. Meissner, Quincy; W. C. Wilhelm, Canadair.

Next meeting of the Procurement Quality Control committee will be in October at Corporate Headquarters, New York City.



SUCCESSFUL "SURGERY" — In top photo is T-2 tanker as it underwent "surgery" at Quincy division where midsection was removed. Below is result, now named USNS Redstone, shown during high-speed sea trial. Redstone and two sister ships will track astronauts en route to moon.

Apollo Ship Delivered To Navy 9 Days Early

The Project Apollo tracking and communication ship USNS Redstone was delivered June 30 by General Dynamics to the U.S. Navy, nine days ahead of the accelerated target date for delivery.

Delivery climaxed three weeks of dock and sea trials and an intensive examination by Navy inspection teams at Quincy (Mass.) division.

"She passed her tests with flying colors," reported Lewis Emmerich, who directs the program for General Dynamics. "She's an excellent ship."

Following acceptance by the Navy, she was placed in command of Capt. Harold J. Slusher of the Military Sea Transport Service, which will operate Redstone and her two sister ships for the Navy.

Redstone is the second of three World War II T-2 tankers being converted by General Dynamics under a $90 million contract. Each will carry more than 400 tons of electronic equipment.

The three vessels are designed to track and communicate with American astronauts during manned missions to the moon in NASA's Project Apollo.

Of the three ships, Redstone is the first to be equipped with SATCOM (satellite communication) terminal equipment that will permit her to communicate around the world via synchronous satellites.

Redstone is scheduled to remain at Quincy division until late this year for testing. She will be mission ready in December and will be stationed in the Indian Ocean during lunar missions.

Six divisions of General Dynamics, with Electronics division, Rochester, as prime contractor, are involved in preparing the ships.

The conversion program is directed by the Instrumentation Ships Project Office within the Department of the Navy. Capt. A. Hancock is program manager. Instrumentation systems will be operated by USAF with technical assistance from NASA.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 19, No. 15 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, July 27, 1966



VANDENBERG CRAFTSMEN—A. H. Hoines, ABRES A site manager, holds perpetual trophy presented to site team for having won "Craftsmanship" honors in May. L. L. Jella, right, chief of reliability control at WTR, presented plaque to Hoines as Maj. H. V. Clary Jr., site maintenance officer, observed. ABRES A group won WTR "Craftsmanship" honors for three consecutive months.

Value Engineering Workshop Develops Cost Saving Ideas

Twenty-five Convair division men during a recent two-week Value Engineering Workshop developed ideas they believe could save the division and its customers more than $680,000.

Divided into six teams, they spent 10 days learning and applying VE concepts to determine how work being done by the division on specific tasks can be accomplished more economically while maintaining functional requirements and desired reliability.

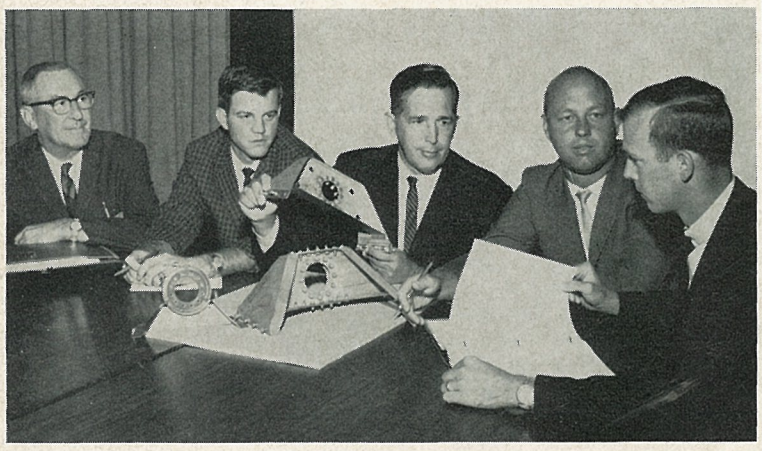
The teams evaluated procedures being used on mine shipping crates and section weldments, the C-5A forward bullet fairing high frequency isolation band, the air-to-air refueling model F-106A rudder control system and the Centaur balanced thrust vent support horn and liquid hydrogen vent valve support bracket.

Team 1 suggested redesigning shipping crates to cut the number of parts and labor time and Team 2 proposed use of aluminum casting instead of stainless steel weldment for the mine drill and explosive sections.

Members of Team 3 recommended a filament winding system instead of hand fabrication techniques for the C-5A isolation band and Team 4 proposed use of cable guards instead of relocation of turnbuckles in the F-106A rudder control system.

Team 5's study of the Centaur hydrogen venting system support horn resulted in a recommendation that it be fabricated from

(Continued on Page 2)



VALUE STUDENTS—Anthony Calman, center, holds stainless steel liquid hydrogen vent valve bracket that Value Engineering Workshop team believes could be used instead of difficult-to-fabricate fiberglass model. Others from left, are R. P. Dempsey, D. A. Nirschl, C. A. Benner (project leader) and P. E. Kreimeier.

Post Retirement Medical Insurance Plans Offered

New post retirement medical insurance plans are now available for hourly and salaried employes retiring at age 65, according to M. V. Wisdom, director of industrial relations.

These plans provide for the purchase of insurance by the employes at a reduced rate, and provide benefits for expenses which are not covered by Medicare. In addition, retiring employes may insure a spouse who is age 65 or over.

(Similar coverage is available to Stromberg-Carlson and Electronics division employes at San Diego.)

"These new insurance plans are especially tailored to meet the changing needs of our older employes after their retirement," Wisdom said. "This is part of our continuing effort to provide a more effective total compensation program for our employes and retired employes."

The retiring employe who signs for the new coverage before retiring will have protection effective on the retirement date. A retired employe who signs the request for insurance form within 31 days after retiring will have the insurance effective on the date signed.

Prior to retirement employes will be contacted by a representative of employe services and complete details of the new plan, together with other matters which affect retirement, discussed.

Painter to Head Electronics Div.

Richard A. Wilson has resigned as head of the Electronics division, Roger Lewis, president of General Dynamics, announced.



Parker Painter

Wilson, who has headed the division since January, 1963, said that he had desired to curtail his activities for some time but will continue as a consultant to the Corporation.

Wilson will be replaced by Parker Painter Jr., 42, who has been manager of the Electronics division's Orlando, Fla., operations.

Painter was graduated from Massachusetts Institute of Technology in 1949 with a bachelor's degree in electrical engineering. He was a founder of Dynatronics, Inc., producers of advanced telemetry equipment, which was acquired by General Dynamics early this year. He has held senior engineering and management positions with Radiation, Inc., and Melpar, Inc.

Electronics Builds Hydro-Acoustics Lab

W. J. Connelly, Convair division construction coordinator, has been placed on three to five months special assignment at Electronics division in Rochester to coordinate construction of a new hydro-acoustics laboratory. The two-story test facility will have approximately 15,000 sq. ft. of floor space.

Contract Awarded On F-106 Tanks

The Air Force has awarded Convair division a $3.1 million contract to produce external wing fuel tanks for F-106 aircraft to provide greater range at supersonic speeds.

The contract, awarded by the San Antonio Air Materiel Area, San Antonio, Texas, calls for production for 271 supersonic external fuel tank kits for installation by the Air Force on F-106 aircraft. The kit includes the pylons which attach the tanks to the wings, fuel lines, electrical connections, and associated equipment.

The 25-ft. welded aluminum wing tanks will be fabricated at the division's Lindbergh Field plant and will be installed at Air Force facilities.

Designed by Convair, the wing tanks can be carried at supersonic speeds. They can be refueled in flight and jettisoned if necessary. Completion date for the contract is late 1967.

★ ★ ★

SIXTY REFUELING UNITS ORDERED

Convair division has received a contract from the Air Force for 60 in-flight refueling modification units for F-106 jet interceptors.

The current production order from San Antonio Air Materiel Area, Kelly AFB, Texas, is a follow-on to the initial development contract received this spring for design and installation of an air refueling receptacle to modify F-106s for in-flight refueling.

Under the original task, Convair is providing engineering services and boilerplate installation on an F-106A aircraft for feasibility flight testing of air-to-air refueling modification. In addition, Convair will fabricate prototype kits for one F-106A and one F-106B which will be installed and tested by the Air Force.

Convair experimental department now is in the process of boilerplating an F-106A flown to San Diego from Kelly AFB the end of May. Following modification, the plane will be flight-tested out of San Diego by the Air Force with Convair support. This portion of the program is under the direction of S. B. Stevens of the F-106 project office and R. L. Trussell as principal engineer.

Under the production contract, two proofing kits will be delivered to SAAMA the early part of next year.

The complete program is directed by C. S. Brandt, F-102/106 program manager. The contract is administered by service parts department under John Doig.

Division's Data Exchange Efforts Earn Praise From General Funk

Convair division achieved a $166,000 savings last year by using Interservice Data Exchange Program (IDEP) reports to eliminate 92 qualification tests that otherwise would have been required.

Maj. Gen. Ben I. Funk, commander of the Air Force Space Systems Division, in a recent letter to Jack L. Bowers, division general manager, commended the division for its "outstanding support" of IDEP.

"As you know, this program has been a bold step forward in developing an industry-Defense Department team effort for the interchange of test data," General Funk said. "As a result of this program, both industry and the military services have received substantial benefits through the elimination of duplicated test efforts as well as through increased standardization in systems development."

E. J. Reid is IDEP contractor data coordinator at Kearny Mesa, ext. 2511, and W. L. Johnston at Lindbergh Field, ext. 514.

Process Facilities Expanded to Handle Parts for Empennage

Processing facilities at Convair's Lindbergh Field plant are being expanded to handle parts for the giant C-5A empennage as they go through the corrosion preventive treatment after fabrication gets under way later this year.

Bldg. 75 is being extended to make room for five tanks for sulphuric acid anodic processing, using electrolytic action to coat metal parts with a protective film. The anodizing gives parts a hard finish, particularly suitable for protection of exterior parts subject to extreme weather and erosion conditions.

In addition to C-5 parts, around 200 C-141 details for rudders, elevators, vertical and horizontal stabilizers will be treated by the sulphuric acid anodizing process, said F. M. Baxter, Dept. 002 assistant foreman in charge of Lindbergh Field processing and painting.

The five new steel tanks, 40 ft. long by 11 ft. deep and 4 ft. wide, will be used in addition to the six alodine processing tanks already in the building and in use for chemical coating of parts, mostly interior pieces. Three of the 35-ft. long alodine tanks will be lengthened to 40 feet and used in support of both processes.

The south end of the building is being extended 20 feet, one full bay, to accommodate the tanks. Foundations and pits for the tanks were poured the middle of this month by Southern Engineering Corp., subcontractor. The overhead bridge crane will be ex-

(Continued on Page 3)



VISITING GENERAL—Maj. Gen. Harold E. Humfeld, second from left, is briefed on Atlas SLV-3 assembly operations by Robert G. Daly, left, launch vehicle programs factory operations manager. Others with General Humfeld are Col. James R. Ourand, Defense Contracts Administration Services plant representative, and Jack L. Bowers, right, Convair division general manager. General Humfeld is commander of the 1st Strategic Aerospace Division at Vandenberg AFB.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between July 15 and July 31.

Thirty-year: Dept. 574-1, F. A. White.

Twenty-five-year: Dept. 015-0, S. Brown, L. K. Lee, F. E. Reed; Dept. 059-3, G. Davidson Jr.; Dept. 145-1, D. S. Arnott; Dept. 146-1, P. A Nagy; Dept. 149-6, M. E. Thomas Jr.; Dept. 170-2, R. W. Shaffer Jr.; Dept. 195-1, S. E. Nowry; Dept. 250-0, O. Browning; Dept. 250-3, J. L. Channell, N. Thompson; Dept. 250-5, C. E. Hendricks, C. White; Dept. 405-0, M. Delva; Dept. 420-1, W. J. Galpin, J. P. Kuswara; Dept. 588-1, E. E. Benson Jr.; Dept. 756-0, A. N. Williams; Dept. 832-3, C. A. Hagman, R. L. Ingraham; Dept. 850-1, J. Cicalo; Dept. 987-0, C. H. Splinter; Dept. 988-5, C. B. King Jr.

Twenty-year: Dept. 059-2, J. G. Henry; Dept. 149-2, G. G. Webber; Dept. 250-5, L. L. Sellers; Dept. 300-4, O. A. Bonnema; Dept. 590-0, D. P. Germeraad; Dept. 756-0, J. I. Lockout; Dept. 979-4, R. G. Goldinger.

Fifteen-year: Dept. 002-0, C. E. Flores; Dept. 015-0, F. E. Stoike; Dept. 024-0, L. E. Lopez; Dept. 031-0, O. J. Anderson, A. E. Bittner; Dept. 041-0, F. Patruno; Dept. 101-6, D. G. Evans; Dept. 127-0, V. L. Parker; Dept. 130-1, C. M. Hamel, D. W. Sykes; Dept. 149-5, L. A. Liggett; Dept. 195-0, R. R. Bullock; Dept. 250-2, R. S. Toy; Dept. 250-6, D. Cooper; Dept. 300-3, N. G. Anderson; Dept. 420-9, G. B. Quinsler II; Dept. 511-1, D. DeCrescenzo; Dept. 581-1, J. R. Bain; Dept. 758-0, D. L. Holloway; Dept. 780-1, R. J. Blommer; Dept. 780-3, V. A. Newlin; Dept. 833-2, H. Lesser; Dept. 835-1, T. K. Boyle; Dept. 836-1, J. Zatarian; Dept. 961-7, L. W. Janson; Dept. 962-4, R. R. Nelsen; Dept. 963-8, T. F. Hayes; Dept. 963-9, J. J. Zorrilla; Dept. 972-0, R. W. Cook; Dept. 978-3, R. J. Hartman; Dept. 987-0, J. R. Weaver.

Ten-year: Dept. 002-0, L. L. Larranaga; Dept. 015-0, J. N. Soures; Dept. 058-0, C. M. Fox; Dept. 059-3, J. D. Huddleston; Dept. 101-2, M. M. Kosmas; Dept. 101-7, H. L. Smith; Dept. 113-0, J. W. Ensign Jr.; Dept. 123-0, R. L. Hall; Dept. 124-0, H. I. Reavely, G. G. Whitford; Dept. 130-1, F. F. Lutz; Dept. 141-3, C. R. Gilbert, D. W. Rokos; Dept 142-1, J. J. Molter; Dept. 145-0, I. E. Wissner; Dept. 145-1, J. D. Tucker Jr.; Dept. 146-4, M. H. Chadwell; Dept. 149-2, W. T. Brown; Dept. 170-1, B. L. Ennis, A. L. Sloan, O. J. Ward.

Dept. 191-0, C. E. Helminski, B. L. Whatley; Dept. 250-0, W. Russ Jr.; Dept. 250-2, J. Childers; Dept. 250-5, J. H. Rainey; Dept. 300-3, B. J. Payne, L. B. Perkins; Dept. 403-1, L. M. Whitney; Dept. 460-0, E. Puett; Dept. 503-0, D. H. Robey; Dept. 508-0, H. L. Kees; Dept. 524-5, E. M. Sprague; Dept. 526-6, H. A. Wilson; Dept. 541-0, J. C. Dobyne; Dept. 545-0, B. A. Rees; Dept. 551-1, C. W. Fenske; Dept. 553-0, D. E. Herbert; Dept. 563-0, D. J. Sullivan; Dept. 572-1, J. W. Horning; Dept. 574-6, D. L. Watson; Dept. 578-1, C. C. Crush; Dept. 591-0, C. A. Nelius.

Dept. 733-0, E. Portillo; Dept. 759-0, G. D. Lnudquist; Dept. 780-1, H. S. Crites; Dept. 832-3, J. M. Castenada; Dept. 833-1, E. V. Mitchell; Dept. 833-2, J. Justis; Dept. 847-1, G. B. Byers; Dept. 954-1, C. Allen Jr.; Dept. 957-0, M. L. Atkins, F. M. Lipe, T. Madden, H. F. Richards; Dept. 958-7, F. K. Jacobsen, J. A. Price; Dept. 961-2, H. C. Fredrickson; Dept. 963-4, D. P. Duchene; Dept. 963-8, P. D. Yarrington; Dept. 966-8, J. E. Mullen; Dept. 974-4, R. L. Brown, R. C. Oakley, A. L. Olderich Jr.; C. M. DeLaBretonne, R. M. Sailer; Dept. 978-1, L. R. Jordan; Dept. 979-1, J. H. Keatley, T. J. Skelley Jr., J. L. Smith; Dept. 979-4, L. D. Chalfant, M. W. Talbert Jr.; Dept. 984-2, R. I. Gordon; Dept. 984-4, K. L. Wieland; Dept. 985-4, D. D. Lisiewski.

ELECTRONICS

Twenty-five-year: Dept. 66770, C. F. Ratcliffe.

Fifteen-year: Dept. 6867, D. H. Roll

Ten-year: Dept. 63760, C. T. Bach Jr.; Dept. 64780, W. W. Hussey, D. Q. Stewart; Dept. 68670, P. E. McCourt.

STROMBERG-CARLSON

Twenty-five-year: Dept. 8620, J. A. Pascarella.

Fifteen-year: Dept. 8710, A. M. Rollo.

Ten-year: Dept. 8030, H. H. Prebonich; Dept. 8810, R. E. Mattas.

Personals

CONVAIR

I wish to express gratitude for the sympathy offered to me and my family on the passing of my wife, Alice, on June 29.

W. J. Connelly
Dept. 250-0

* * *

I wish to express my deep appreciation for the thoughtful donation to the Heart Fund, and the flowers, cards, and many kindnesses at the death of my beloved husband, Samuel J. Geller.

Mrs. Sarah Geller.

Births

CONVAIR

CRUPI — Daughter, Katherine Ann, 4 lbs., 15 oz., born June 11 to Mr. and Mrs. Raymond F. Crupi, Dept. 961-8.

JENNINGS—Son, Richard Brian, 6 lbs., 7 oz., born June 18 to Mr. and Mrs. R. W. Jennings, Dept. 966-3.

MARTIN—Son, Donald Brice, 7 lbs., 8 oz., born June 29 to Mr. and Mrs. S. J. Martin, Dept. 574-2.

TEEL — Son, Nathan Adam, 6 lbs., 14 oz., born July 4 to Mr. and Mrs. Harold R. Teel Jr., Dept. 756-0.

General Dynamics News

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Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

Awards

CONVAIR

Employe Suggestion awards approved for the week ending July 1.

Dept. 002, C. W. Johnson, W. R. Miller; Dept. 015, D. J. Galloway, G. J. Kureri; Dept. 141, G. K. Huff, W. J. Knox, R. J. Kolek; Dept. 193, H. L. Maddox; Dept. 250, V. H. Marshall; Dept. 401, M. A. Julio; Dept. 420, D. J. Campbell; Dept. 733, J. C. Morales.

Employe Suggestion awards approved for the week ending July 8.

Dept. 015, W. E. Reader, H. A. Wilson; Dept. 016, W. J. Gibson; Dept. 149, J. E. Campanella, S. Witkoff; Dept. 759, R. E. Orozco, F. A. Silvas; Dept. 833, F. L. Dewey; Dept. 835, H. H. Hyde; Dept. 964, B. D. McClure and R. W. Moore.

Invention Disclosures

CONVAIR

ADSIT — N. R., Dept. 572-1. Protective Coating of Carbon Filaments.

HAGER — R. N., Jr., Dept. 578-5. Ultra High Vacuum Seal-Off Valve.

HANSON—Ray and EDWIN K. YAGER, Dept. 507-0. A Dynamic Accelerometer System.

ROBERTS — J. A., Dept. 533-1. Heat Shrinkable Coupling.

SLYSH — Paul, Dept. 542-0. Spectrum Analyzer.

In-Plant Training

CONVAIR

ORIENTATION

NEW EMPLOYES—Educational services staff, Lindbergh Field, ext. 491. Bldg. 14 auditorium, Tuesday, Aug. 16, 8 a.m. Kearny Mesa, ext. 1931. Bldg. 17, Room 1, Monday, Aug. 1, 8 a.m.

PROFESSIONAL/TECHNICAL

RELIABLE ELECTRICAL CONNECTIONS—Educational services staff. For further information and quota call ext. 1931, Kearny Mesa.

AFTER HOURS CLASSES
San Diego Junior College

FALL SEMESTER—What subjects are you interested in? Previous on-site courses have included math for electronics, technical writing, introduction to digital computers, computer logic and circuitry, quality control and reliability, technical math, blueprint reading, numerical control, tool design, electronics, supervision. To aid in advance planning, please send AVO to Dick Forrest, zone 130-30, indicating courses you are interested in.

PROGRAMMED SELF-STUDY — A limited number of programmed texts in the subject fields of mathematics, statistics, probability, electricity, electronics, slide rule, English review, computer language and others are available in the educational services offices, Room 4, Bldg. 17, Kearny Mesa. These may be checked out for home study. Office hours 8 a.m.-5 p.m., ext. 1931 Kearny Mesa.

Papers Presented

CONVAIR

BOWDEN—D. T., Dept. 584-3. "Auxiliary Power Unit in Ground and Flight Air Conditioning and Electrical Power on the Convair 600/640," Aircraft Air Conditioning Forum, Los Angeles, June 16.

CARLIN—J. E., Dept. 491-0. "Precision Tube Flaring by Controlled Metal Displacement," SAE Meeting on Aerospace Fittings and Hose Assemblies, Boston, Mass., June 14-16.

CHRISTENSEN—E. H., Dept. 966-3. "Flight Thermal Environment and Temperature Control of Centaur Electronic Packages," Fourth National Electronic Packaging and Production Conference, New York, June 21-23.

CLAY—J. P., Dept. 584-2. "Rarified Gaseous Conduction," AIAA, ASME/Fifth National Congress of Applied Mechanics, Minneapolis, Minn., June 14-17.

PENZES—L. E., Dept. 585-1. "The Effect of Boundary Conditions of Flexural Vibrations of Thin Orthogonally Stiffened Cylindrical Shells," Acoustical Society of America, Spring Meeting, Boston, Mass., June 1-4.

ROSE—R. G., Dept. 585-1. "Analysis of Pogo Instabilities in Future Liquid Rockets," AIAA Fourth Aerospace Sciences Meeting, Los Angeles, June 27-29.

* * *

Papers presented at San Diego Bio-Medical Engineering Symposium, June 6-9: B. A. CHRISTENSEN, J. M. HLAVIN, Dept. 591-0. "An Analysis of the Systematic Errors in the Multipole Heart Model;" G. L. DRAKE, Dept. 592-0. "Regenerable Life Support Systems"; W. A. SHAFER, Dept. 592-0. "The Systems Approach to the Development of an Artificial Heart."

Papers presented at AIAA/Joint Propulsion Specialists Conference, Colorado Springs, June 13-17; L. D'ATTORRE, G. NOWAK, H. U. THOMMEN, Dept. 596-0. "An Inviscid Analysis of the Plume Created by Multiple Rocket Engines and a Comparison with Available Schlieren Data; Part II, A Finite Difference Method"; G. A. HOWELL and R. E. TATRO, Dept. 584-2. "Tangential Fluid Injection for Control of Shock-Boundary Layer Interaction."

Papers presented at ASQC/20th Annual Technical Conference, New York, June 1-3: E. G. SMITH, Dept. 141-2. "Quality Program—A Team Effort"; W. H. KIRK, Dept. 141-2, "Acceptance Vibration Testing—Benefit vs. Cost." SAM PETCHER and W. F. MacDONALD, Dept. 143-3. "Information Storage and Retrieval System"; W. F. RICE, Dept. 146-3. "Education for Quality Control and Professional Certification."

Papers presented at National Bureau of Standards' Cryogenic Engineering Conference, Boulder, Colo., June 13-15: G. L. O'BARR and M. D. CAMPBELL, Dept. 572-1, "The Effects of Temperature on Propagation Velocity and Other Explosive Parameters of Mild Explosives"; K. E. LEONHARD, R. C. GETTY, D. E. FRANKS, "A Comparison of Cooldown Time Between Internally Coated and Uncoated Propellant Lines"; R. C. MITCHELL, Dept. 584-1, "Zero-gravity Hydrogen Tank Venting System"; G. B. YATES, Dept. 584-3, "An Experimental and Analytical Evaluation of the Thermal Behavior of Liquid Hydrogen in a Tank Designed and Insulated for Use in a Hypersonic Vehicle"; J. L. CHRISTIAN, Dept. 572-1, "Mechanical Properties of Several Nickel Base Alloys at Room and Cryogenic Temperatures"; J. HERTZ, Dept. 572-1, "Compatibility of Atlas Materials with Fluorine Propellants."

Papers presented at SAE/Advanced Launch Vehicles and Propulsion Systems Conference, Huntsville, Ala., June 14-16: JOHN G. KALOGERIS, Dept. 950-7, "Atlas E/F Launch Vehicle Capabilities"; R. J. VOTH and J. P. MOORE, "Advanced Atlas Launch Vehicle Digest."

Retirements

CONVAIR

BARNES — W. H., Dept. 850-0. Seniority date April 17, 1961, retired June 10.

BEGUE—Bert J., Dept. 170-2. Seniority date May 27, 1962, retired June 30.

BORGES—J. C. Dept. 101-6. Seniority date Jan. 15, 1951, retired July 8.

BURGESS—L. V., Dept. 835-6. Seniority date Jan. 23, 1947, retired July 8.

BRUNTON—Leah B., Dept. 818-2. Seniority date Dec. 11, 1950, retired June 27.

DAVIDSON — N. V., Dept. 525-6. Seniority date Oct. 3, 1935, retired July 10.

DEMOS—James N., Dept. 759-0. Seniority date Dec. 19, 1955, retired April 16.

GILMORE—Bonnie E., Dept. 191-0. Seniority date Dec. 20, 1955, retired June 30.

KRUEGER—Edward W., Dept. 731-0. Seniority date Oct. 17, 1951, retired June 24.

LEDBETTER—Clyde J., Dept. 833-3. Seniority date June 20, 1951, retired July 1.

McDANIEL—R. E., Dept. 835-4. Seniority date June 5, 1956, retired June 30.

MICONE — Charles, Dept. 382-1. Seniority date Dec. 4, 1956, retired July 13.

MILLER — Ruth M., Dept. 521-6. Seniority date Nov. 7, 1960, retired July 13.

PINNEY—Charles D., Dept. 141-2. Seniority date Oct. 14, 1957, retired June 10.

SHEPARD—Mabel R., Dept. 780-3. Seniority date Jan. 14, 1957, retired July 2.

TUTTLE — R. D., Dept. 824. Seniority date Oct. 22, 1951, retired June 4.

WELTY—Ira V., Dept. 015. Seniority date Oct. 27, 1950, retired June 30.

WILLS—Thomas W., Dept. 130-0. Seniority date July 29, 1940, retired June 27.

WILSON — F. M., Dept. 756-0. Seniority date May 26, 1942, retired July 8.

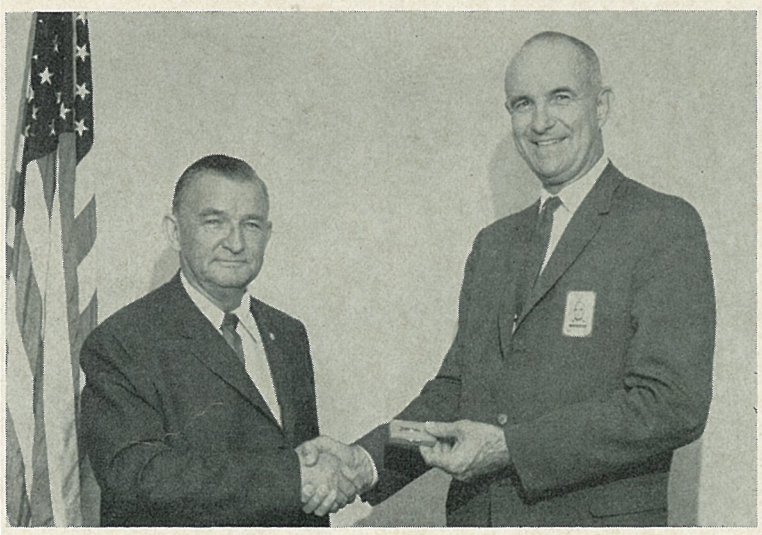
Today Is Deadline For Baseball Draw

Today (July 27) is the last day to enter names in the CRA baseball drawing for Padres' home games in August and September.

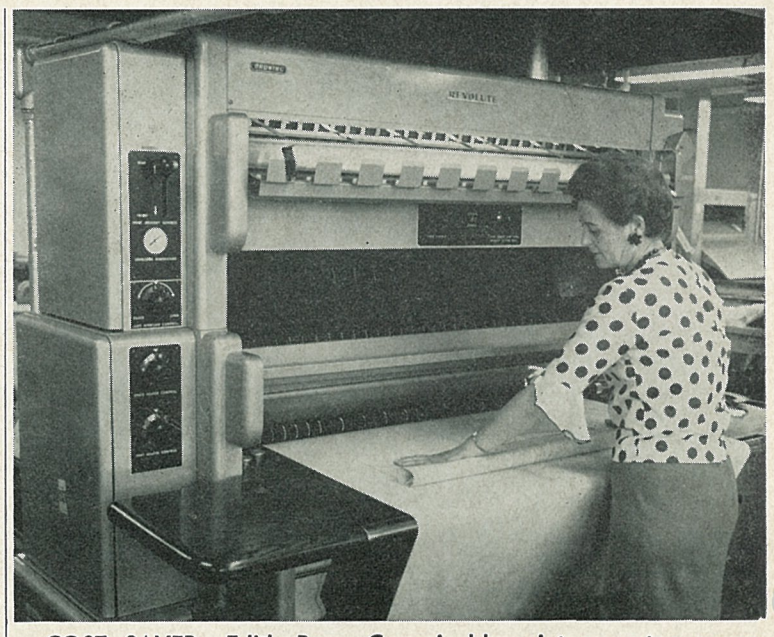
Drawing, final one this season, will be July 29.

Entry slips must contain name, division, plant, department number, shift, plant phone extension. Only one entry per person is allowed.

Baseball drawing boxes are at all employe services outlets at Convair, Stromberg-Carlson, Electronics; CRA Clubhouse; engineering mailroom in Lindbergh Field's Bldg. 51; office of Clyde Medearis, Plant 19.



35 YEARS — T. M. Hemphill, value engineering specialist in Dept. 561-0, received service emblem recently for 35 years with Convair division. Jack L. Bowers, general manager, made presentation. Hemphill served as an engineer on 18 successful aircraft ranging from XBY-1 to F-102 and from 1961-63 was manager-operator of Convair radio telescope at Clark Lake, Calif.



COST SAVER—Edith Ross, Convair blueprint operator, reproduces huge engineering drawing on new Bruning Revolute machine installed in graphic reproduction operations at Lindbergh Field plant. New equipment will accommodate drawings up to 54-in. wide and save division thousands of dollars.

New Equipment to Streamline Reproducing Large Drawings

New equipment installed late last month in Convair graphic reproduction operations at Lindbergh Field plant will save the division over $175,000 by streamlining reproduction of large engineering drawings.

Cost Reduction Proposals submitted by W. F. Strasburg of graphic reproduction (Dept. 123-0), engineers H. C. Kelly (Dept. 527-1) and R. J. Schulte (Dept. 511-6) resulted in purchase of a Bruning Revolute Comet whiteprinter, one of the most modern of its type.

The new machine produces positive copies directly from Mylar drawings, eliminating the need for photo vellums, H. B. Day, chief of graphic reproduction, explained.

Savings will amount to 70 cents per square foot—cost of the photo vellums. Based on cost of vellums which would have been needed for reproduction of C-5 engineering drawings alone: 1,000 drawings and revisions totaling 253,782 square feet, savings for this year will be $177,647.

The new machine joins a battery of diazo-type reproduction machines now in use in the division's graphic reproduction department at both Lindbergh Field and Kearny Mesa plants, although it is considerably larger and speedier than the others. All use the diazo process by which drawings are transferred onto paper coated with diazonium salts (light-sensitive chemical compounds) exposed to ultraviolet light and developed by ammonia fumes. The latest acquisition is the only one which can print directly from Mylar without the intermediate vellum.

The Revolute Comet can reproduce engineerings drawings up to 54-inches wide. This will make it especially valuable because it can accommodate the large engineering drawings of huge components of giant planes in the planning, Day said.

It also is equipped with two individual controls to allow two operators to work simultaneously on separate jobs run at different exposures.

Value Workshop Ideas Developed

(Continued from Page 1)

sheet metal instead of fiber glass and Team 6 proposed use of stainless steel instead of fiber glass for the liquid hydrogen vent valve support bracket.

Project leaders for the teams were T. L. Cross of Dept. 403-0, C. L. Hibert of Dept. 661-0, and C. A. Benner of Dept. 963-6. Everett Lindem of educational services, Dept. 130-3, was coordinator.

Team representatives presented results July 11 in the Bldg. 2 presentation room at Kearny Mesa.

John D. Milling, division controller, commended the teams for their "excellent results." "These studies give us a lot of opportunity to improve reliability and decrease cost," he said.

Following are team members:

Team 1—W. T. Hollar, 141-0; G. H. Owen, 973-1; L. L. Tuttle, 717-0, and D. H. Vaughan, 512-2.

Team 2—D. A. Paukovec, 953-3; R. R. Wahler, 532-0; K. E. Hogeland, 954-0, and A. R. Marshall, 956-0.

Team 3—E. M. Duke Jr., 141-0; R. H. Johnson, 833-3; D. K. Smith, 545-3; E. G. Wygant, 588-1, and T. R. Harwood, 951-6.

Team 4—Helgi Heinzmann, 545-3; Paul Johnson, 544-4; G. R. Spitzer, 145-0, and R. B. Thompson, 059-0.

Team 5—J. L. Hall, 973-1; R. A. Smalley, 506-1; F. L. Unmack, 491-0, and R. H. Utschig, 984-2.

Team 6—Anthony Calman, 581-5; R. P. Dempsey, 491-0; D. A. Nirschl, 978-5, and P. E. Kreimeier, 845-3.

DANCERS MAY JOIN CLASS

Unmarried employes of General Dynamics between 21 and 41 years of age have been invited to attend square dance classes being given at 8 p.m. Thursdays by the Reveler Squares at Jefferson Elementary School, 3770 Utah St. For information, phone 278-9166, 278-6728 or 283-4267.

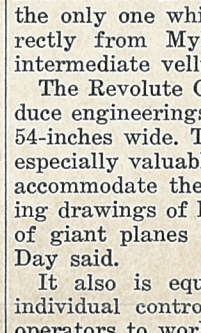
Minter, Pardee In New Posts

Two new appointments became effective this month within the controller's department with Fred N. Minter named assistant to the controller and Donald R. Pardee, manager of management systems, according to an announcement by Jack L. Bowers, division manager.

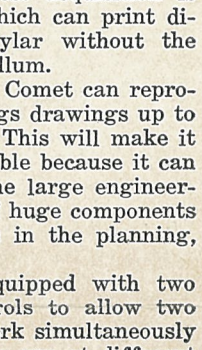
Both Minter and Pardee report to John D. Milling, division controller.

Pardee, formerly chief of division systems, succeeds John H. Johnson who is on special assignment.

In his new post Pardee is responsible for division systems, data processing operations, and configuration management functions. He joined the former Astronautics division in May, 1964, as manager of division systems after holding managerial posts with such companies as Hughes Dynamics, Inc., Litton Industries, Sperry Gyroscope, and Eastern Airlines.

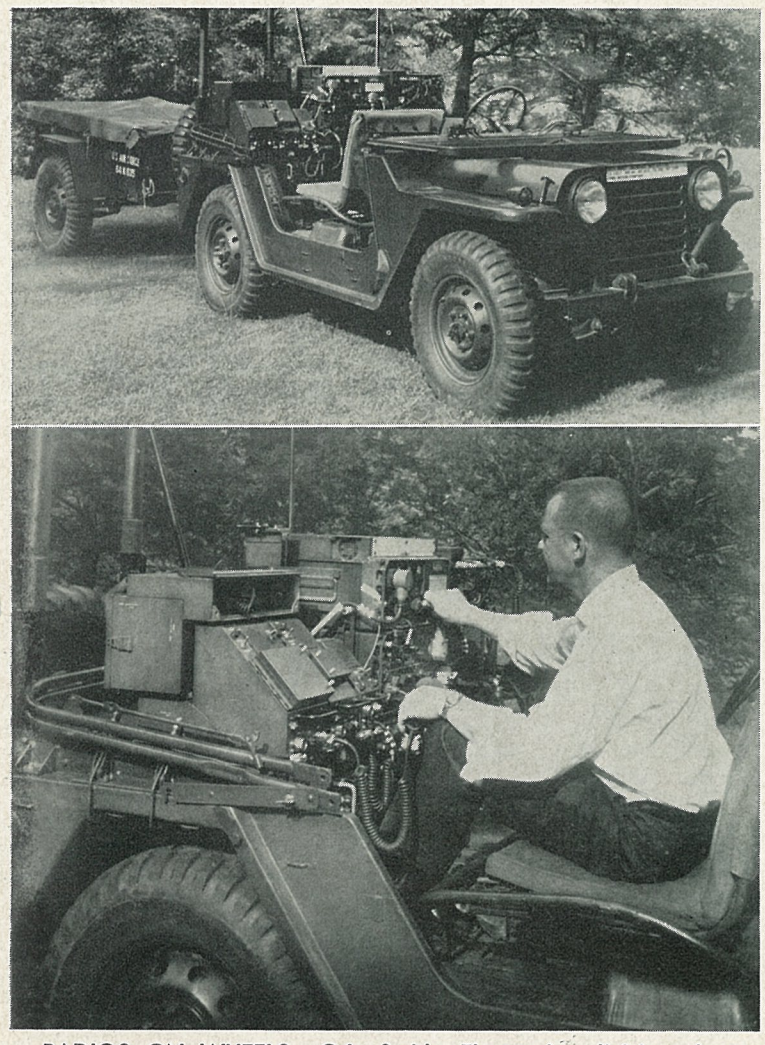


Fred Minter



Don Pardee

Minter, with Convair since 1940, was financial administrator of aircraft programs at the Lindbergh Field plant at the time of his present appointment. He was manager of indirect budgets for Convair from 1957 to 1963 and manager of budgets and financial analysis at the time of the merger of the Convair and Astronautics divisions last year.



RADIOS ON WHEELS—Otis Smith, Electronics division deputy marketing manager, radio communications, demonstrates new jeep-mounted communications system being delivered to USAF. Designed for forward area air controllers, unit has four radios for ground force and aircraft communications. All can operate from jeep's power system.

Electronics Division Produces First Mobile Radio Center

The first of 377 jeep-mounted combat radio communications centrals are rolling off production lines of Electronics division at Rochester.

Produced under a $10 million contract from the U. S. Air Force Systems Command, the units are the first mobile communication centers specifically designed and built to military specifications for forward air control parties.

The units thus correct many of the problems posed by combat radios now in use, according to Parker Painter Jr., division general manager.

Designated AN/MRC-107, the units consist of four radios and associated antennas and are mounted on a base that can be moved from their normal jeep-mount to an armored personnel carrier or light truck if the need arises.

The units are designed to meet the needs both of a direct air support party and of tactical air control parties. They provide immediate communication with both air and ground forces whether the vehicle in which they are mounted is moving or stopped.

The four jeep-mounted radios, operating over high, very high and ultra high frequencies, can transmit and receive with sets in aircraft, ground stations or manpack units. Two manpack radios are carried with each AN/MRC-107 system.

The radios can be operated from the jeep's own power system or from a trailer-mounted portable generator system.

Simplified tuning, a key General Dynamics contribution to combat radio design, and other simplified features enable airmen to operate the communications centrals after a half-hour's instruction.

The AN/MRC-107 units will be operated by the Tactical Air Command, the Pacific and European Air Forces, and supporting elements of the Air Force Communications Service.

Process Facilities Expanded at LF

(Continued from Page 1)

tended over the new area. Ventilation and electrical installations are being modified to become compatible with the new facility. The argon/helium storage facility supporting the landing mats line is being relocated outside the new Bldg. 75 extension.

The remodeled processing building will be ready for use by the end of October.

Convair facilities engineering men overseeing the project are R. D. Marks, industrial engineer; D. D. Sturhann, facilities planning engineer; and R. F. Grimshaw, field engineer for construction coordination, all of Dept. 250, plant engineering.

If one copy is sufficient, why order more?



25,000 HOURS! — Les Nelson (left), Convair logistics support rep, presents F-102 model to Col. Patrick E. O'Grady, commander of 142nd Fighter Group, Oregon Air National Guard, after completion of 25,000 hours of flying. Col. O'Grady was flying Convair-built F-102 when he passed the 25,000-hour mark.

F-111 Weapons Work Approved

Contract amendments for research, development and production of long-lead time items for Mark II and Mark IIB avionics systems for the F-111A and FB-111 have been announced by the Air Force.

Air Force said that about $39.8 million for development is expected to be involved in the near future, and that the value of the change over the next few years may amount to about $147 million.

Fort Worth division will be prime contractor for the Mark II, and Autonetics Division of North American Aviation, Inc., Anaheim, Calif., will be subcontractor.

"Fort Worth division has been working with the Air Force since the inception of the F-111 program to insure that new advances in avionics are utilized to their fullest to continually improve the F-111 weapons system," said President Frank W. Davis.

"The Mark II system will provide this added avionics capability for future Air Force F-111 fighter-bombers.

"Incorporating advanced development and state-of-the-art techniques in avionics, the Mark II will provide improved navigation, air-to-ground and air-to-air weapon delivery capability for future F-111 variable-sweep wing aircraft," he said.



GOLDEN SHOE — Gordon Lundquist, electron-beam welder in Convair Dept. 759-0, shows damage to safety shoe after factory mishap. Safety shoe prevented injury.

Toes Escape Amputation

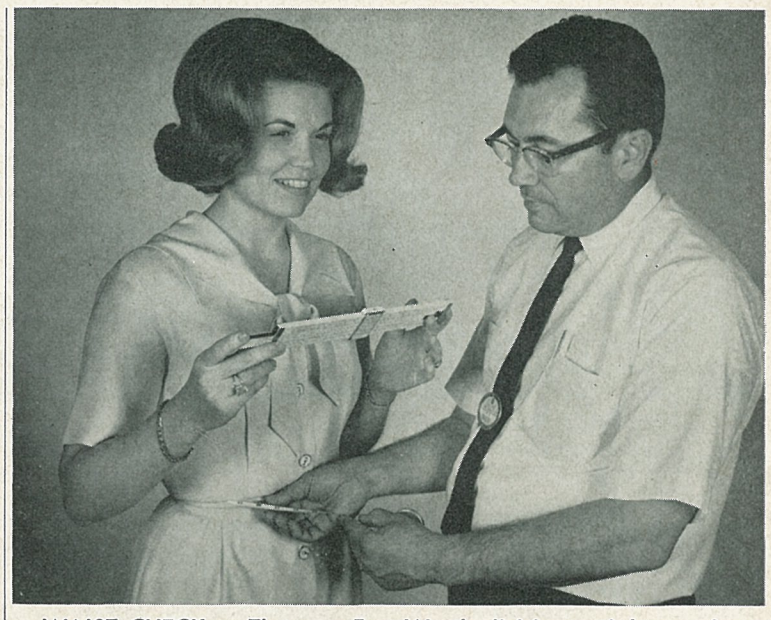
Gordon D. Lundquist, an electron beam welder in Convair Dept. 759-0, Kearny Mesa, has been presented a national "Golden Shoe Award" after safety shoes he was wearing prevented serious injury.

Lundquist was moving a 1,500-lb. head-and-tail stock assembly motorized table out of the electron beam welder on forks of a 2,000-lb. hand-operated fork lift when the assembly caught on a window facing and was thrown off balance.

The movement caused the rear of the fork lift to slide back and over the top of one of Lundquist's shoes, cutting the leather away from the steel plate on the toe.

"I didn't feel anything, although if I hadn't been wearing safety shoes I easily could have lost my toes," Lundquist said later. "My only concern at the time was to see that the $15,000 assembly didn't fall."

On the strength of his experience, Lundquist designed and built a device from scrap materials (following approval of an Employe Suggestion) that prevents a recurrence. Bolted to the assembly, it provides indentations into which the lift forks fit snugly, preventing the assembly from moving.



WAIST CHECK — The way Fort Worth division weights engineer Bob Thompson figures it, Joyce Rawdon's waist measurement is impressive by any yardstick — 24 inches using "English System," 61 centimeters by metric method.

Hold Simpler

Weight Engineers Supporting Adoption of Metric System

The 1975 Miss America will likely weigh about 54.48 kilograms and measure a pulchritudinous 96-61-91 centimeters.

That's 38-24-36 inches and 120 pounds, based on the "English System" of weights and measurements used in the U. S. today.

But many organizations — such as the Society of Aeronautical Weights Engineers (SAWE)—are thumping for adoption of the System International (SI). Based on the metric system, SI was established in 1960 as a potential world-wide system, encompassing every type of measurement.

SAWE is so interested in the movement that they recently passed a resolution urging Congress to expedite study of the possibilities of SI, according to Bob Thompson and Cantrell Hayes, Fort Worth division engineers who are officers in the organization.

"The advantage of SI is that there is one — and only one — unit for each physical quantity," Thompson said. For example, in SI a gram is the only unit of weight, while ounces, pounds and tons are used in the English System. Prefixes such as kilo- and milli- are used to designate powers of 10.

"In addition, the SI units for force, energy and power are the same regardless of whether the process involved is mechanical, electrical, chemical or nuclear."

Thompson said much time and money is spent in converting pounds to kilograms (1 lb. = 0.45359237 kilograms); yards to meters (1 yd. = 0.9144 meters); and inches to centimeters (1 inch = 2.54 centimeters). More sophisticated conversions, he adds, are much more complicated.

"Mapping throughout most of the world is in meters," Thompson noted. "Weapons are sized in millimeters, and cargoes are transferred in kilograms.

"In industry, the cost of making products and tools for both English-System and metric-system countries is literally quite staggering."

Thompson quoted SAWE figures which show that U. S. exports to countries using the English System increased by 20 per cent between 1957 and 1963; exports to countries using metric system dropped by 2 per cent.

"Engineers and scientists who have worked with the metric, and now the SI units have noted the ease of calculations," Thompson said. "Not only are conversions easier to remember — being either one-to-one or multiples of 10 —but there are fewer calculation steps required.

"However, experience has shown there's really only one way to become proficient at converting English measurements to a metric system — everyday calculations."

But the housewife — faced with the eventual prospect of purchasing vegetables by the kilogram and material by the centimeter—need not despair.

"Widespread conversion to a metric system would require at least a decade, maybe 15 years," Thompson said.

Messenger Returns Lost Money Clip

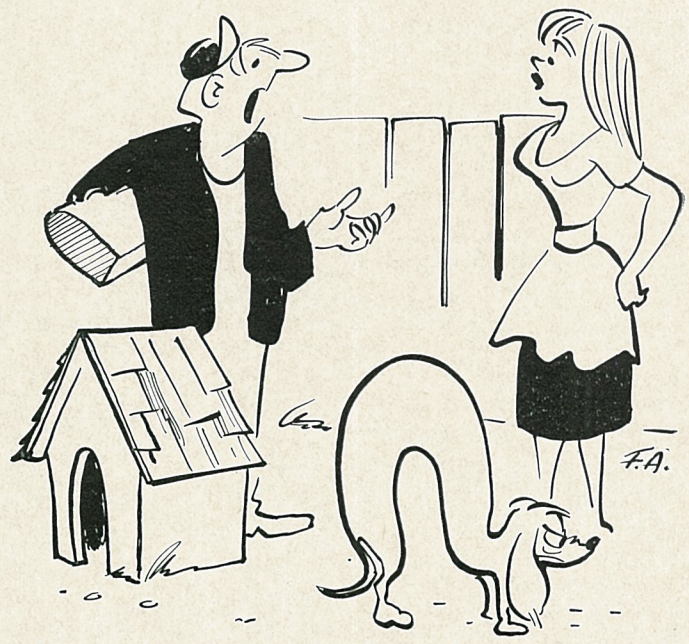
Does honesty pay?

It did last week for Mike Lacy, Fort Worth division, Dept. 24-7 messenger.

Lacy found a money clip containing $328 in bills lying smack in the center of the plant's 50-foot aisle.

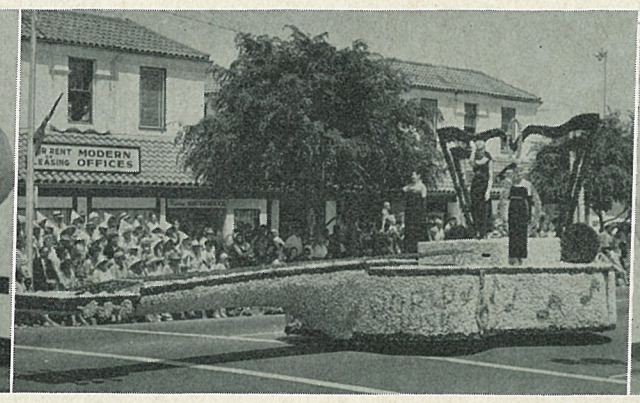
He traced the owner through a driver's license. The embarrassed — but grateful — owner rewarded the finder with a $164 award.

"I didn't want to take it," Lacy said, "but the guy insisted."



"Okay! Okay! I'll take tomorrow off and build a longer dog house!"







TRIUMPHANT DECORATORS — Don Fagan, Convair base operations manager at WTR, presents trophies to Tony Estalio, designer of floats that took parade honors. | At left is Convair group that decorated Lompoc Festival float, while at right is group that worked on Santa Maria entry. Center is Lompoc parade scene.

Con-Trib OKs Data Products Camping Fund

Nearly 40 San Diego youngsters will spend a week at camp this summer through the generosity of Stromberg-Carlson Data Products' employes.

S-C's Con-Trib-Club committee, at its July 13 meeting, voted $900 to local organizations for summer camperships for children who otherwise would not be able to afford the experience. YMCA,



FUN AHEAD — Eddie Alcozer and Ricardo Estrada of Wm. J. Oakes Boys' Club get close-up look at Stromberg-Carlson Con-Trib checks for summer camperships before Loretta Boyd of S-C committee hands them over to J. C. Jacobs, Boys' Clubs of San Diego executive director.

YWCA, Girl Scouts, and Boy Scouts each received $125; Boys' Club of San Diego, $100; Boys' Clubs at Clairemont, Linda Vista, Chula Vista, El Cajon, National City, $60 each.

In addition, the Con-Trib committee approved $2,500 as second, and final, payment of the 1965-66 pledge to United Community Services.

Con-Trib committee members administering funds are J. W. Swank, manager of industrial relations; Clay Murdock, S-C Management Club representative; Tod Barrow of accounting; Clete Klein, production engineering; Loretta Boyd, assembly.

'Firstborn' at Ranch Is Registered Filly

Convair horsemen's Riding Club is pleased to announce arrival of a new addition—the first "little one" born at the Mountain View Ranch stables on Kearny Mesa.

The registered filly, sorrel with a white star, made her arrival at 12:35 p.m., June 23.

Owner is David L. Watson, a fireman in Dept. 130-1.

SKI BOATS BUSY EVERY SUNDAY

Convair water skiers are holding regular skiing sessions each Sunday morning in Mission Bay waters, CRA Commissioner Joe Harris reported. Skiing starts at 8 a.m. and continues throughout the morning hours with two club boats in use at the Crown Point water ski area. Wednesday evening skiing will be scheduled after work off Santa Clara Point, if there is enough demand.

Sheet Metal Dept. Earns Craftsmanship Leadership in June

Dept. 732 (sheet metal) at Kearny Mesa won June "Craftsmen of the Month" honors for Convair division in the San Diego area with a 116.8 quality index.

The department had reduced its defect rate per 100 manhours worked from 1.13 for the past six months to .50 for the past three months — a 55.8 per cent improvement. The win was the second for the year and the fourth for the department since competition began in 1964.

Dept. 979's operations support personnel at the Eastern Test Range scored their fourth consecutive monthly Craftsmanship win by completing their fifth straight month with no defects and scoring a perfect 130.0 quality index for the third consecutive time.

Operations support has won ETR craftsmanship honors five times during the 14 months it has been in the competition.

MAB 5 personnel of Dept. 985 were "Craftsmen of the Month" at the Western Test Range with a 109.9 quality index for June. MAB 5 lowered its number of defects per 100 manhours from .109 for the six months average to .73 for the three months average.

The win was the sixth for MAB 5 since the program began. The last previous MAB 5 win was in August, 1965.

Non-Flyers Offered Enough Instruction To Land One Safely

A "pinch-hitter" course for non-flyers will be given on an individual or group basis to Convair people and their friends, through sponsorship of the Bonair Flyers, CRA flying club.

Ken Morgan of Electronics-SD, qualified flight instructor, will teach the course on a continuing basis. Instruction will include four hours of flight time and four hours of ground instruction, at Montgomery Field. Cost will be between $50 and $60, including text materials, depending upon the size of the class. Graduates will receive certificates of completion.

The course, formulated by the Aircraft Owners and Pilots Association, is designed to enable non-pilots in the right-hand seat to take over the controls if the pilot becomes incapacitated during flight. Course objective is to teach just enough rudiments so that a passenger can take over control, keep the plane in level flight until a nearby airport is located and land the plane safely.

Anyone interested may register with Inez, CRA Clubhouse, KM ext. 1111.

RESERVE OFFICER COMPLETES TOUR

Gerald D. Schmidt of Convair Dept. 194-0, a colonel in the Marine Corps Reserve, completed a two-week tour of duty the first of this month at the National War College at Ft. Lesley J. McNair, Washington, D. C. He attended the Defense Strategy Seminar held each summer under direction of the Joint Chiefs of Staff for selected reserve officers.

SALVAGE YARD TO OPEN AUG. 20

Next sales day at Convair's Lindbergh Field salvage yard has been set for Saturday, Aug. 20.

Blair to Head Info Services

Keith G. Blair heads library and information services at Convair, succeeding Lou Canter who has accepted a position with Jet Propulsion Laboratory library.

Blair reports directly to D. H. McCoy, chief of engineering administrative services.

He joined the Company in 1957 as engineering librarian in the former Astronautics division and was named chief librarian for the Convair engineering library at the present Lindbergh Field plant the following year. He rejoined the then Astro division in 1962 as assistant to Canter.

Before coming to Convair, Blair was chief of reference and bibliographic services at the Navy Electronics Laboratory for 10 years.

He was graduated with a BA degree from the University of Iowa and received his bachelor of library science from Columbia University.

Pecan Park Selected For Club Aug. 7 Picnic

Convair Management Club will have CRA's Pecan Park, 8 miles east of El Cajon on Hwy. 80, all to itself for its annual summer picnic Sunday, Aug. 7.

The picnic grounds will be entirely turned over to the family affair for that day. No other groups will be admitted.

The Management Club picnic will be from 11 a.m. to 6 p.m. Each family will provide its own food. The club will provide ice cream and beverages.

There will be games and prizes for youngsters and adults, and a raffle.

Club Boosters are selling tickets at $1 per family. Operations departments are sponsoring.

Sunny Dark Elected By Toastmistresses

Sunny Dark, a management technician in the Defense Contracts Administration Services plant representative's office at Convair, was elected supervisor of Golden Desert Region of International Toastmistresses Clubs at a recent conference in Phoenix, Ariz.

Mrs. Dark is a member of Delta Toastmistress Club, is a past chairman of Council Seven which represents 17 clubs in the San Diego area.

Convair Float at Vandenberg Wins Another Sweepstakes

A 40-foot-long guitar float created by Convair division employes at Vandenberg AFB won its second major award in a month June 25 when it won the sweepstakes trophy in the 14th annual Lompoc Flower Festival.

The float earlier had won the sweepstakes in the June 4 Elks parade in Santa Maria.

Division employes redesigned the float for the Flower Festival to include large musical notes for the background and covered it with more than 400,000 purple and yellow blossoms from Lompoc area flower fields.

Three attractive Convair girls in evening gowns, Betsy Roy, ABRES A; Ann Cordial, office services; Pat Susee, material control, added beauty to the float.

Tony Estalio of Dept. 985-1 was float designer and Marsha Dale, secretary to the contracts administrator, was color coordinator. The jeep over which the float was built was driven by Colin Sword of design support.

More than 50 employes worked from 7 p.m. to 4 a.m. covering the float with blossoms donated by the Lompoc Chamber of Commerce.

Refreshments for the decorators were provided by Mr. and Mrs. Tony Valdiva (Dept. 985-1).

Charger Pre-Season Ticket Sale Begins

Tickets to the Chargers' first pre-season home game Aug. 6 at 8 p.m. with Miami go on sale today at Convair, Stromberg-Carlson, and Electronics.

Price of reserved seats on the west side, upper deck, is $3.50 each. Ticket sale will close Aug. 4.

Ducats to the Aug. 13 game with Oakland will be on sale from Aug. 4 to Aug. 11.

Quick Response Reported In Referrals by Employes

Convair division's employe relations and employment section received 57 referral forms the first three days after employes were invited in the July 13 issue of GD/NEWS to aid in recruiting by providing names and information on qualified new employe prospects.

Robert M. Smith, manager of employe relations and employment, said the first three days' inter-office mail included 15 referral forms for prospective employes for engineering positions and 42 for factory openings.

The division needs to employ several hundred qualified men and women during the next few months to assist with work on new and follow-on contracts and to increase technical capability in both current and new product areas.

About half the new employes will be needed for technical and half for factory positions.

"We are pleased with initial results of our new program under which our employes have been given an opportunity to recommend qualified friends," he said. "Personal contact can be a determining factor in our securing well qualified engineers and craftsmen."

Smith urged all employes who can recommend well qualified prospects to fill out the accompanying form and send it as soon as possible through inter-office mail to the employment section.

All referrals will be acknowledged and employes making recommendations will be advised of final disposition.

Current openings for engineering and technical personnel are in aerodynamics, aircraft and missile flight test evaluation, aircraft and missile structural design, advanced guidance analysis, circuit design, control and structural dynamics, economic analysis, electrical/electronics test labs, flight test, guidance and control design, mechanical design and mechanical test lab engineering.

Also, weights engineering, micro-bonding, operations research, packaging design, re-entry heating, reliability, RF instrumentation design, scientific and business programming, standards labs, structural analysis, thermodynamics and trajectory analysis.

Among factory personnel needed are tool planners and designers, molded plastic tool builders, plaster pattern makers, template makers, tool and die makers, form block makers, milling machinists and operators, jig bore machinists and operators, lathe machinists and operators and jig and fixture builders.

Please complete this form and return to R. M. Smith, manager of employe relations and employment, Mail Zone 130-90, General Dynamics Convair Division, 5001 Kearny Villa Road, San Diego, Calif. 92112.

Your Name_____

Address_____

_____

Dept._____ Ext._____

Home Phone_____

I WOULD LIKE TO RECOMMEND

Name_____ Telephone_____

Address_____

City_____ State_____

This person is experienced in_____

_____

_____

In contacting this individual, may we use your name as the person who recommended him? ___yes ___no

CRA Calendar

(For information on CRA activities call CRA Headquarters, Kearny Mesa, ext. 1111. Deadline for copy for the next issue of GD/NEWS is Aug. 3. Call ext. 3322 KM or 1071, LF.)

★ ★ ★

BADMINTON—Play Mondays, 7-10 p.m., Federal Bldg., Balboa Park.

BONAIR FLYERS — Meeting Aug. 2, 7:30 p.m., CRA Clubhouse. Registration open now for ground school and "pinch hitter" courses. Call ext. 1111, KM.

BRIDGE — Play each Friday, 7:30 p.m., CRA Clubhouse.

CAMERA CLUB — Meeting Aug. 7, 7:30 p.m., Photo Arts Bldg., Balboa Park.

CERAMICS — Group meetings Tuesday and Thursday, 7-10 p.m., CRA Clubhouse.

CHESS — Play each Wednesday, 7:30 p.m., CRA Clubhouse.

DELTA DIVERS — Spearfishing dive Aug. 7, 9 a.m., Casa Manana, La Jolla. Annual beach party, Aug. 20, La Jolla Shores.

FENCING — Workouts and instruction Fridays, 7:30-10:30 p.m., YWCA, 10th & C Sts.

GARDEN CLUB — Annual summer show July 31, Floral Association Bldg., Balboa Park. Open to public 1-6 p.m.

GOLF — CRA tournament July 30-31, Coronado course.

ICE SKATING — GD skate nights Thursdays, 6:15-7:45 p.m., Mission Valley Ice Arena.

RADIO CLUB — Meeting Aug. 4, 7:30 p.m., CRA Clubhouse.

RIDING CLUB — Next meeting Aug. 10, 7:30 p.m., CRA Clubhouse.

RIFLE — Senior shoot tonight (July 27), 7:30 p.m., Gillespie Field Range. Junior Rifleers shoot Aug. 6, 8 a.m.

SAILING — Film showing tonight (July 27), 8:30 p.m., CRA Clubhouse. Business session at 7:30 p.m.

SCULPTURE — Workshop sessions Mondays, 7:30-10:30 p.m., CRA Clubhouse.

SKI CLUB—Water skiing Sundays, 8 a.m., off Crown Point. Call Joe Harris days before 3 p.m. at 284-0278.

SPORTS CAR CLUB — Next meeting Aug. 10, 7:30 p.m., Convair executive dining room, Pacific Hwy.

TOASTMASTERS — Convair Toastmasters No. 3745 meet Wednesday, 4:15 p.m.; Dynamic Toastmasters No. 457 meet Thursdays, 5:15 p.m., both in CRA Clubhouse.

TOASTMISTRESS CLUB — Serra Mesa Club meets first and third Mondays, 7:30 p.m., CRA Clubhouse.

TROPICAL FISH CLUB — Meeting Aug. 8, 7:30 p.m., CRA Clubhouse.

WIVES — Day at the Races, Del Mar, today (July 27). Laguna Art Festival trip Aug. 13. Call Georgia Hatfield, 273-2757.

Schnaubelt, Zeich Win Rifle Trophies

H. J. Schnaubelt, Dept. 978-3, garnered trophies for both prone and sitting position shooting and Richard Zeich, Dept. 533-2, trophies for kneeling and standing position firing in Convair Rifle Club's annual championships early this month at Gillespie Field Range.

Laura Farrelly (wife of Dave Farrelly, Dept. 572-1) took second-place awards in the sitting and kneeling events, Zeich in prone position shooting and Martin Miller of Dept. 125-0 in standing position firing.

SAILING CLUB TO VIEW FILM

Convair Sailing Club invites all interested GD people to view a special film showing of one of the annual Newport Beach to Honolulu sailing races this evening, July 27, in the CRA Clubhouse, Kearny Mesa. The program will be at 8:30 p.m., following a members' business meeting at 7:30.

Sports & Recreation

Large Field Expected For NMA Area Golf

Convair Management Club will pay $2 of the entry fee for all members who sign for the NMA Western Division golf tournament next month.

The tourney, sponsored by the San Diego Council, will be Aug. 27 and 28 over Cottonwood and Torrey Pines courses.

Regular entry fee, including greens fee, of $15 will be cut to $13 for Convair club entries, said Gerry Cox, general chairman of the event.

Cox said more than 500 will take part, many from the Los Angeles area. Deadline for signing is Aug. 15. Convair members are asked to call Terry Kell at LF ext. 605.

Shotgun starts will kick off play in the 36-hole handicap match. Trophies and prizes will go to the top six in each of 20 flights and guest flights. Awards will be made at a Sunday night (Aug. 28) barbecue at Cottonwood.

Pilots' Ground Classes Slated

Two pilots' ground school courses will be offered General Dynamics' people in the fall school semester of the city's Adult Education program, Bonair Flyers' commissioner, Glen Hemphill, reported.

An instrument commercial ground course will be held each Wednesday evening, starting Sept. 14. Those signing must hold a private pilot license with approximately 160 hours flying.

An aviation ground school course will be conducted each Thursday evening, beginning Sept. 15. There are no minimum requirements for this class.

A nominal fee of $5 a person is charged for each course. People taking the instrument course will be given some practical "hood time" and those entered in the aviation ground school will get some actual flight time, both at additional cost.

Both classes will be held at the Midway Evening Adult School, Room 10, 3249 Fordham St., from 6:30 to 9:30 p.m. Classes run for 14 weeks.

Instructor will be Kenneth Morgan of Electronics-SD and member of the Bonair Flyers. Morgan has over 3,500 hours of flying experience and holds a commercial pilot rating. He is an FAA-rated ground instructor, flight instructor, and instrument flight instructor.

A minimum of 15 students is required before start of each course. All interested may list their names through ext. 1111, CRA Clubhouse, Kearny Mesa.

Dick Zeich Named Rifle Commissioner

Dick Zeich of Dept. 533-2 heads the Convair Rifle Club as new CRA commissioner, succeeding Bob Andrews who has resigned, J. K. Field, chief of employe services, announced.

Zeich has been affiliated with the Junior Rifleers the last three years as instructor and statistics officer and served as chief statistics officer for the annual San Diego Junior Regional Tournaments over the same period. He also was active in formation of the adult group of the rifle activity a year ago.

He joined Convair in 1950 in B-36 modification and now is design engineer in the F-102/106 ground support section at Lindbergh Field plant.

Toastmasters Name Schwartz President

E. W. Schwartz of Convair Dept. 584-2 has been installed as president of Dynamic 457 Toastmasters Club, which meets at 5:15 p.m. Thursdays in CRA Clubhouse.

Other new officers include F. W. Stevens of Dept. 958-3, administrative vice president; R. R. Sodomka of Dept. 420-9, secretary, and K. J. Jamrus of Dept. 958-4, treasurer.

Hal Story of Dept. 142-2, area governor of Toastmasters District 5, was installing officer.

Flower Show Will Be Sunday

CRA Garden Club's annual summer show, highlighting dahlias, will be staged this coming Sunday, July 31, in Balboa Park's Floral Association Bldg. The public may view displays without admission charge from 1 to 6 p.m.

Best-of-show awards will go to best dahlia in show, best large dahlia, medium dahlia, three pompons, three miniatures or balls, smallest dahlia, largest dahlia, best fruit, vegetable, arrangement, corsage, and children's entry.

Forty-nine classes will be open to dahlia exhibitors, in addition to classes in citrus and deciduous fruits, vegetables, arrangements, corsages, two children's classes—5 to 11 yrs., and 12 to 16 yrs.

All specimen blooms must be grown by exhibitors.

Entries will be accepted between 7 and 9 p.m. on Saturday, July 30, and from 7 to 11 a.m. on Sunday morning. Judging will start at 11.

Classification forms are available at all employe services outlets and the CRA Clubhouse.

Farrelly Family Wins Rifle Honors

Convair Rifle Club's Farrelly family brought home seven trophies after firing against 80 competitors in the Southern California Junior Rifle League's July 16 match in South El Monte.

Dave Farrelly of Dept. 572-1 and his wife, Laura, competed in parent-instructor events and their son, Dave Farrelly Jr., in junior competition.

Farrelly took second place P-I trophy and Dave Jr., third place sharpshooter trophy in Match 1 at 50 yards. Mrs. Farrelly took the second place P-I trophy and Dave Jr., third place sharpshooter in Match 2 reversed target shooting at 50 yards.

Dave Jr. also garnered a third in Match 3, a 50-yard miss-and-out contest.

Night Shoots Slated At Gillespie Range

Adult shooters of CRA Rifle Club are scheduling two night shoots a month, on the second and fourth Wednesday, 7:30 p.m., at Gillespie Field Range, in addition to the first Sunday morning club shoots.

Lighting is adequate for the 50-ft. range, and will be extended for the 50-yd. range, if enough shooters turn out to warrant.

Friends of Rifle Club members may join the shoots at the nominal range fee of 50 cents an evening.

Junior Rifleers continue on their schedule of club shoots the first Saturday of each month at 8 a.m., also at Gillespie Field.



TROPHY WINNER—Mabel Dunn was first winner of GD Women's Golf Club's new Ernie Paul Perpetual Trophy presented by Paul at special tournament in June.

Ernie Paul Perpetual Trophy Will Bear Name of Mabel Dunn

Mabel Dunn will have her name engraved as first winner of the Ernie Paul Perpetual Trophy, given for the first time to the GD Women's Golf Club member who shoots low gross in an annual trophy tourney.

The new club trophy honors Ernie Paul, formerly of Electronics and Stromberg-Carlson, who conducted free instruction sessions for GD women when the club was first formed three years ago. Many of his students have gone on to become proficient golfers.

The trophy will be displayed throughout the year in the CRA Clubhouse trophy case.

Agnes Silger won the CRA individual trophy for winning A flight the second time in a row on July 9. Eileen Steffes was B flight winner in play over the Mission Bay course.

Flight A runners-up were Iris Oster, Betty Liddell, and Freda Magargal, while other winners in Flight B were Lorene Waldron, Emma Webb and Willa Gonzales. All won gift certificates.

A week of free golf went to low gross winners in each flight, Freda Magargal and Eileen Steffes. Isabelle Corbett won a free golf lesson.

Next club tourney will be Aug. 13 at River Valley with tee-off time set for 8 a.m.

Delta Divers Slate Fishing and Party

Delta Divers have scheduled a spearfishing dive at 9 a.m. Aug. 7 at South Casa Manana in La Jolla and the club's annual beach party at 5 p.m. Aug. 20 at La Jolla Shores. Tickets for the beach party are now being sold by team captains and club officers.

Rod Johnson, Team 2 captain, brought in three abalones in nine minutes July 10 at North Bird Rock to establish a new club record. Runners-up in the abalone race were Clay Valstad, Gary Jenkins, Jorge Zorrilla, John Phair, Cliff Kickbush, Bob Nicholas, George Jonilonis and Phil Swanson.

Jim McGinnis remains in first place in "diver of the year" contest standings with 51 points. Bill Howard has 46 points and Johnson and Valstad each 34.

All openings have been filled for the new diving class being sponsored by the club.

Trail Ride Weekend Spent in Cuyamaca

Over 60 CRA Riding Club members and guests gathered at Cuyamaca State Park for a weekend of trail rides and fun at Horsemen's Group Camp July 8-10.

Twenty-one horses were trailered to the site for rides in the pine country Saturday and Sunday, said Scotty Payne, trip chairman.

Seventy-seven were served at a community dinner Saturday evening. Tina Pena was in charge of food; Shirley Berry, entertainment; and Floyd Branscomb, emcee.

The July 17 horse show was one of the largest ever sponsored by the group, Boyd Spencley, manager, reported. A total of 221 entries competed.

Convair youngsters on the Mountain View Mist Riders drill team put on a performance during the show's lunch break. The team is directed by Jane Nash with her daughter, Charlann Harmer, drill captain.

Next fun show is set for Aug. 21 at the CRA ring.

STARR WILL HEAD SOARING SOCIETY

Convair's Sterling Starr won dual honors at the 33rd annual U. S. National Soaring Championships this month at the deactivated Stead AFB, north of Reno, Nev.

He finished ninth out of 65 contestants in overall standings for the nine-day meet and was elected president of the Soaring Society of America, Inc. He will assume office Jan. 1, 1967.

Starr, Dept. 581-1, has been a consistent winner in glider competition for several years — he won the Pacific Coast Midwinter Soaring Championships at Torrey Pines in 1961.

In this year's national competition Starr flew his Schweitzer 1-23HM — a Schweitzer fuselage equipped with wings of his own design and construction.

Other Convair glider pilots participating were Walt Mooney and Gene Whigham. Ron Stoner, also of Convair, was ground crew for Mooney.

Discount Offered For La Jolla Shows

Coupons for discount tickets for La Jolla Theater Group presentations are now available for General Dynamics employes at Convair, Stromberg-Carlson and Electronics-SD employe services outlets, the CRA Clubhouse, and the Bldg. 51 engineering mailroom at Lindbergh Field.

"Design for Living" is being presented at 8:30 p.m. daily through July 31 and "The Physicists" is scheduled Aug. 5 through 14 (except Mondays) in La Jolla High School auditorium.

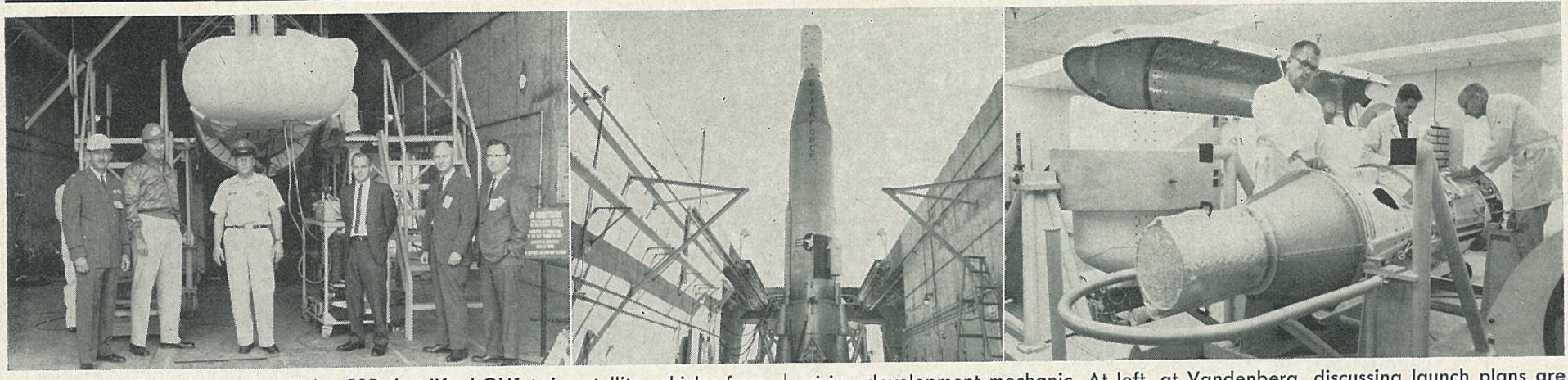
Employes with discount coupons will pay $2.75 for $3.50 tickets, $2.50 for $3 tickets and $2 for $2.50 tickets.

Sq. Dancers Slate Fall Instruction

Advance call is out for people who want to learn to "allemand left and do-si-do."

CRA Square Dance Club will start its annual fall instruction course for beginners on Sept. 13 in the CRA Clubhouse, Kearny Mesa. Dottie and Van Vander Walker will instruct.

For information call Commissioner Marty Stutz, ext. 1441, or Roland Hagar, ext. 1954, both Kearny Mesa; or Merritt Strickland, ext. 634, Lindbergh Field plant.



OV1 LAUNCH—In center is Atlas 58D that lifted OV1 twin satellite vehicles from Vandenberg AFB. At right is OV1-8 with metal canister holding 30-ft.-diameter balloon, being readied at Convair's Kearny Mesa plant by Cliff Richards, senior electronics technician, E. L. Batson, quality control inspector, and J. D. Easter, precision development mechanic. At left, at Vandenberg, discussing launch plans are Lt. Col. Levin W. Parker Jr., Lt. Col. Clyde A. Northcott Jr., Maj. Laurence A. Zastrow, Louis Orosz, Convair coordinator, L. E. Ottem, Convair OV1 program manager, E. R. Gauthier, assistant program manager.

Key Punch, Verifier Operators Speed Work With New Machines

Convair division key punch and verifier operators who process between 1½ and 2 million IBM cards a month to support the division's computer operations are now using new equipment in a new location.

Thirty-four new IBM 29 card punch and 23 IBM 59 verifier machines to replace older models for more efficient operations have been installed in better lighted quarters for keypunch operations Dept. 101-6 in Bldg. 4 at Kearny Mesa. The department's new quarters have large glass windows along the entire north wall.

The new card punch machines have 64-character keyboards for use in converting source data into machine language on punched cards for the division's System 360 mode computers.

A light-sensory system in the verifiers provides immediate indication of error and notches the error column when the sequence punched by the verifier operator differs from that previously punched into the card. The verifiers have an automatic verification speed of 80 columns per second and insert a notch on the end of each card verified and found accurate.

"The new equipment improves production output with a substantial reduction in noise level," Kenneth A. Kerr, supervisor of keypunch operations, said. Samuel J. Wooters is assistant supervisor of the department on the first shift and Jack Wilsford on the second.

Kerr said the new machines were phased into operation five or six at a time with IBM representatives, the assistant supervisors and lead ladies in the department assisting personnel in learning proper usage of the new keyboard and new devices on each machine.

He said the department's "express line" operation previously established has proved very effective for handling small jobs requiring fast service.

Design Specialist To Study For Ph.D.

Curtis Gleason, Stromberg-Carlson Data Products design specialist, has received a research fellowship to pursue a course of study in biomedical engineering from the National Institute of General Medical Sciences, a branch of the Department of Health, Education, and Welfare.

The S-C engineer intends to take his Ph.D. at Stanford University, specializing in neurology.

He received his BS from the University of California at Berkeley and his master's in electrical engineering from Stanford. He has been with Stromberg-Carlson at San Diego the last six years.

Magnuson Speaker For ZD Ceremony

W. E. Magnuson, chairman of Convair division's "Convair Craftsmanship" and "Do Good Work" program, spoke last week at kick-off ceremonies for a Zero Defects program at the Presidio of San Francisco.

More than 2,500 military and civilian personnel from Sixth Army headquarters, the Presidio and other tenant organizations attended. Magnuson also was key speaker June 16 at similar ceremonies attended by 2,000 at the Navajo Army Depot in Flagstaff, Ariz.





COMPUTER SUPPORT—Convair division keypunch operations personnel have 57 new IBM card punch and verifier machines for more efficient operations in support of division's System 360 computers. In top photo, new IBM 29 card punch machine is demonstrated by Betty Honeyman, keypunch and verifier operator in Dept. 101-6.

30-ft. Balloon Put in Orbit

Atlas 58D boosted satellite vehicles 7 and 8 of the OV1 (orbital vehicle one) series into space July 13 from ABRES B Pad 3 at Vandenberg AFB in a launch for the Air Force's Office of Aerospace Research (OAR).

OV1-8 carried an unusual payload—a 51-pound metal canister containing a 30-foot-diameter balloon for an experiment being conducted by the Air Force.

It was fired into a near-perfect circular orbit about 545 nautical miles above the earth some 16 minutes after riding into space on the nose of the Atlas.

The balloon, inflated in space, was cut loose by a squib-actuated knife and after completing a few orbits its photolyzable plastic hull decomposed and left a reflective open metallic grid in orbit.

Flight of the grid will be checked by ground radar reflection for one year to determine its rigidity and influence of solar pressure, partical drag, etc. The Space Track Network is providing orbital tracking support.

OV1-7 carried six Air Force and NASA experiments but failed to achieve desired orbit.

Atlas 58D, refurbished under the Air Force's Common Link program for its new scientific launch mission after being retired from SAC inventory, also carried a side-mounted suborbital passenger pod with spectrometers for four additional experiments.

Convair builds the OV1 vehicles and scientific passenger pods, integrates the scientific experiments and provides launch services under OAR direction.

100th Atlas Flawless In Launching Agena

Flawless performance of Convair division's Atlas SLV-3 No. 5305 in lifting the Gemini 10 Agena target vehicle into space last week marked the 100th Atlas flight in support of the United States' space program.

It also was the 299th time an Atlas had been launched in all programs — military and scientific. The 300th launch will be a classified mission launch from Vandenberg AFB. The 500th Atlas to be manufactured by the division is scheduled for factory "roll out" next month.

Andrew Kalitinsky, assistant program director-launch vehicle engineering, said the Gemini 10 Atlas booster lifted off on schedule and within one second of opening of the "launch window."

"The flight was very smooth, followed the intended flight path very closely and released the Agena on its desired trajectory," he said. "We are very pleased with the technical results of the flight."

The Agena was fired into a near-circular orbit about 185 miles above the earth.

After Lt. Cdr. John Young and Capt. Michael Collins, the Gemini 10 astronauts, docked with Agena, the Agena-Gemini was propelled into a new altitude-record setting orbit 472 miles above the earth.

This placed them into position for rendezvous with the Gemini 8 Agena target vehicle boosted into space in March by Atlas SLV-3 No. 5303. The augmented target docking adapter used for Gemini 9 was placed in orbit June 1 by Atlas SLV-3 No. 5304.

The Gemini 10 booster in its "particularly significant" flight as the 100th Atlas used in space program launches had its final assembly and checkout time at the Kearny Mesa factory reduced from 32 to 13 days.

It was described as one of the "cleanest birds" ever delivered by the division with all flight hardware aboard for complete checkout at the factory. Space officials also described its precision countdown, liftoff and flight as being "as clean or cleaner than any we've seen in the Gemini program."

In the 100 space program launches, the Atlas has flown 16 different types of missions. These included launches for Air Force classified satellites, Vela satellites, the Able lunar program, the Mercury program, SCORE communications satellite, Centaur research and development boosters, the Ranger lunar program, the Surveyor lunar program, the Mariner Venus program, the Mariner Mars program, the FIRE reentry program, eccentric geophysical observatory satellites, orbiting astronomical observatory satellites, orbiting geophysical observatory satellites and the Gemini augmented target docking adapter.

The missions required nine basic trajectories — polar orbit, circular orbit, elliptical orbit, suborbital re-entry, simulated lunar intercept, lunar intercept, lunar orbit, Mars intercept and Venus intercept.

New Telemetry Sets Designed, Built For Use on Atlas E and F

First of 35 new all-solid-state telemetry sets designed and being built by Convair division for the Air Force Ballistic Systems Division for use on modified Atlas E and F missiles will be delivered next month.

The first of the new sets will be used on Atlas 117-F in a future advanced ballistic re-entry system (ABRES) re-entry measurement program flight from Vandenberg AFB.

Initial units have been undergoing qualification tests and will be "flight tested" before use.

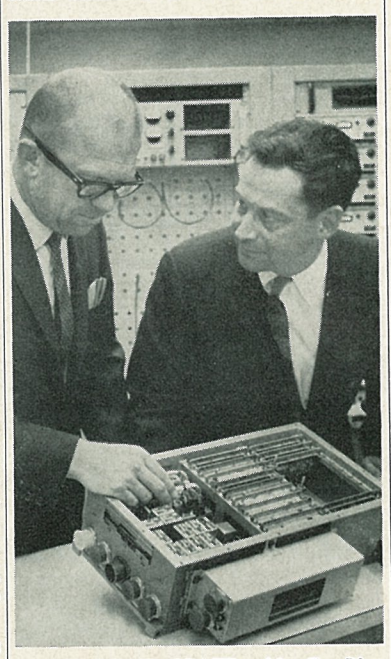
Frank J. Gaffney, program manager, said the division did some initial planning two years ago after need for a more reliable, lighter weight and less expensive airborne instrumentation system became apparent.

The division submitted low bid for the fixed-price and incentive contract under which the 35 new units are being built for BSD after the Air Force requested proposals from more than 50 firms last year.

Gaffney said the contract was awarded Jan. 3, critical design review completed March 31 and electrical tests run on the first production unit early last month.

Although developed for the Air Force, the division plans to make the new highly versatile sets available to other customers for both military and commercial applications.

The set consists of three major elements—a signal conditioning unit inside a lightweight aluminum canister and a 3.5-lb. commutator and a 1.4-lb. transmitter bolted to the outside of the canister.



ALL-SOLID-STATE—H. E. Pietsch, who directed engineering design, left, and F. J. Gaffney, program manager, discuss versatility of new solid-state telemetry set designed by Convair division for Air Force. Sets will be used on modified Atlas E and F missiles.

Each of the signal conditioning unit elements are designed to "plug in" to circuits in the canister. This facilitates easy removal or replacement when desired "in the field."

Easily removable top and bottom covers on the 18 by 6 by 9-inch canister provide easy access to signal conditioning elements and the wiring harness.

The set can be easily reprogrammed or modified for new applications since spare signal conditioning space is provided.

Gaffney said "outstanding cooperation" has been received from other departments in design and production.

Hal E. Pietsch is in charge of engineering with D. E. Williams, J. L. De Priest, R. V. Weas and Kenneth Koba providing engineering assistance. W. J. Giesenschlog and A. J. Anderson have handled configuration and data management and Air Force coordination and D. E. Anderson has total production responsibilities.

H. H. Mishler and J. F. Baebler are responsible for quality control, N. E. Tipton for reliability and W. B. Barth for production control. J. H. Walker is handling material purchasing from vendor firms.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 19, No. 16 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, August 10, 1966

Bowers, Ourand Kick Off New Quality Push

Jack L. Bowers, Convair division general manager, and Col. James R. Ourand, Defense Contract Administration Services plant representative, in meetings with supervisors at Lindbergh Field and Kearny Mesa July 29, "kicked off" an expansion of the division's "Do Good Work" program.

"The Do Good Work program is a motivational approach to the elimination of mistakes attributable to human error," Bowers stated.

"During the 2½ years the program has been in effect, approximately half of our employes have been directly involved, chiefly in manufacturing, material and planning functions, and at ETR and WTR. Significant performance improvement has been noted as a result.

"Now we want to expand the program to include all departments and achieve 'total involvement.'"

Under the expanded program, each department will set goals, using activities where performance improvement can be measured. Standard type charts will be made available and put on display so that employes can follow performance progress.

Citing the "high standard of quality" award from Lockheed recognizing work on the C-141 aircraft program, and the high reliability of Atlas launch vehicles over a significant period of time. Bowers said "Convair has a good quality record. . . . We want the Convair name to typify quality in all our products and services."

He urged supervisors to keep quality and performance constantly in mind and to work with employes under their supervision to make the expanded Do Good Work program a "living, continuing thing."

Each employe is being asked to sign a pledge card, pledging his personal participation and support to Do Good Work. Gold plated Craftsmanship pins are being given in recognition of each employe's pledge.

* * *

Gold seals for Craftsmanship plaques for Depts. 972 and 732 were presented for May and June "Craftsmen of the Month" wins. Steve J. Barinka received the seal for Dept. 972 and Jack M. Kline for Dept. 732.

★ ★ ★

Firm Improvement Noted For Division As 'Good Work' Result

Convair division's "Do Good Work" program has resulted in a continuing and significant improvement in quality and an estimated cost avoidance of $5,527,770 since it began 2½ years ago.

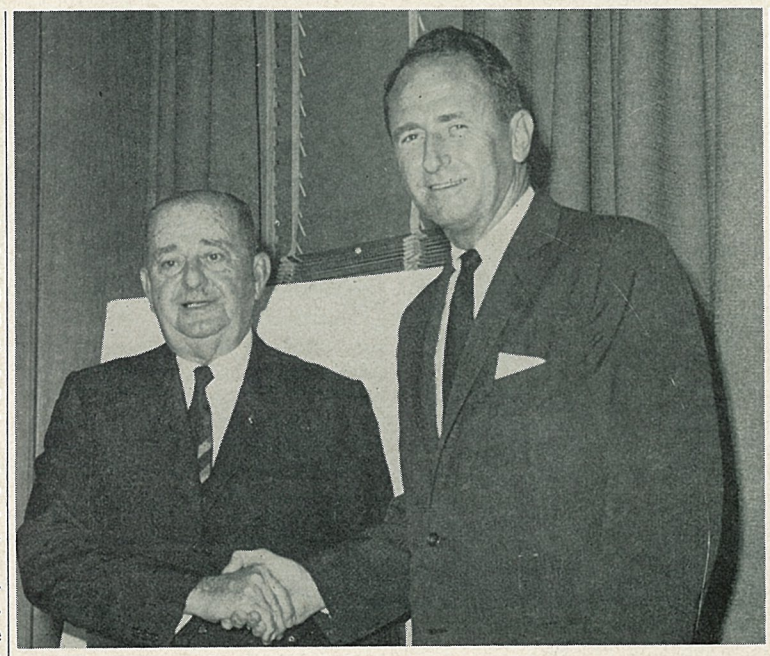
W. E. Magnuson, chairman, said the quality of work done by the division in June was a 68.3 per cent improvement over that being done before the program was initiated in January, 1964.

Evaluation of the program indicates monthly quality improvement ranging from 17.5 to 61.5 per cent during 1964, from 57.8 to 78.4 per cent in 1965 and from 58.1 to 70.1 per cent during the first six months this year.

Quality improvement and cost avoidance estimates are based on reduction in number of defects reported on tasks performed by departments within the division.

Effectiveness of the "Do Good

(Continued on Page 8)



HONORED — I. M. Laddon, veteran General Dynamics director, is congratulated by Roger Lewis, president of General Dynamics, following establishment of a scholarship in Laddon's name at McGill University.

Scholarship Honors Veteran Director

I. M. Laddon, a director of General Dynamics Corporation and one of the leading aeronautical engineers in the United States, has been honored by the Company with the establishment of a scholarship in his name at Canada's McGill University.

The scholarship was announced by Roger Lewis, president of General Dynamics, at the August meeting of the boards of directors of General Dynamics and Canadair Limited in Montreal.

The meeting marked Laddon's 40th year with the Company.

The I. M. Laddon scholarship represents a continuing stipend of $5,000 to be awarded annually. It will enable a U. S. resident selected by McGill University to pursue a four-year course of studies leading to a bachelor's degree in aeronautical or related fields of engineering.

"This scholarship has been created in recognition of the education which Mr. Laddon received at McGill and in the hope that it may give other American students the basis for similarly successful careers," said Lewis.

In his remarks, Lewis also cited Canadian-born individuals who received their college education in Canada and later distinguished themselves in the United States.

Among those he mentioned were J. Kenneth Galbraith, the Harvard University economist who served as U. S. Ambassador to India, and Joseph Charyk, the scientist who became Undersecretary of the Air Force and is now president of the Communications Satellite Corp.

"Canada and the United States," said Lewis, "are closer than any other two large nations on earth. The ties between us run across the entire pattern of human and organizational relationships — in education and the arts, in the professions, in business, in labor and in just about everything from Boy Scouts to Little League hockey teams.

LADDON RECEIVES 40-YEAR EMBLEM

"This is a relationship which we treasure and which we too often take for granted," he said.

Lewis presented Laddon with a 40-year pin set with a diamond and an honor scroll signed by both boards. Its introduction reads:

"Engineer, inventor, designer, administrator, he has contributed for half a century to the furtherance of the science and technology of aeronautics, and in so doing, has nobly served the cause of freedom and of peace.

"Civic leader, Corporate director, family man, honored servant of his government, blunt and honest, he has left an imprint wherever he has been."

Laddon's achievements cited in the scroll include:

His design of the United States'

(Continued on Page 3)

Central Airlines Buys Eleventh 600 Kit; Plane Will Be Modified at Service Center

Central Airlines of Fort Worth, Texas, has purchased its 11th Convair 600 kit from Convair division.

Negotiations were firmed late last month for conversion of another of the line's Convair-Liner 240s to Convair 600 turboprop version with Rolls-Royce power plants.

Convair not only sold Central the conversion kit, but the Convair-Liner 240 which will be modified!

The plane is due into Convair Service Center, which will do the installation, by the middle of this month. Completion is scheduled for the end of November.

Central was the first airline to sign for conversion of Convair-Liners in the fall of 1964 and was the first operator to inaugurate Convair 600 passenger service. It put its first Convair 600 into operation last November. So far, eight Convair 600s have been delivered to Central's Texas headquarters by Convair.

Miniature Railway Volunteers Needed

Railroad buffs are needed to keep the CRA miniature train operating smoothly, Co-commissioners Ed Stevens and Al Kent report.

Volunteers are urged to join work sessions of the Kearny Mesa and Pacific Railroad Club. Work parties meet Tuesday evenings, 5-7 p.m., and Saturday mornings at CRA Missile Park.

Sales, Earnings Continue Up

Net sales of General Dynamics Corporation for the six months ending June 30, 1966, totaled $809,093,000, compared to $705,670,000 for the first six months of last year, Roger Lewis, president, announced last week.

Net income for the first six months of 1966 was $22,576,000, or $2.13 per share of common stock after provision for preference dividends equivalent to six cents per common share, Lewis said. Net income for the first six months of 1965 was $18,326,000, or $1.58 per share after provision for preference dividends equivalent to 24 cents per common share.

Net sales for the three months ending June 30, 1966, were $404,133,000, against $361,228,000 for the comparable period of 1965. Net income for the second quarter of 1966 was $13,321,000, or $1.29 per common share after provision for preference dividends. For the second quarter last year, net income was $11,186,000 or 99 cents per common share after provision for preference dividends.

"A significant part of the increase in net income," Lewis noted, "resulted from the elimination of provisions for preference stock dividends after April 15, 1966, and the inclusion of profit on the F-111 variable-wing fighter program."

The Corporation began reporting profit on the F-111 program in the third quarter of 1965.

Sixteen of the 23 F-111 development aircraft are now being flight tested.

In other aircraft programs, the Convair 600 and 640 turboprop-powered commercial transports have been certified by the FAA for improved landing and takeoff performance, and development has begun on the new Canadair CL-215 amphibious utility aircraft.

Thirty CL-215s have been ordered in a water bomber configuration by the Quebec and French governments for use in forest fire control.

Lewis pointed out that General Dynamics' Atlas rocket vehicles are being employed more often in the nation's space programs this calendar year than ever before.

In July, General Dynamics was awarded one of three contracts for development of proposals for the Fast Deployment Logistic Ship program, a Navy project under which a fleet of cargo vessels will be built as a flexible sea-lift force to support rapid deployment of the armed forces.

Since the surface ship facility at Quincy, Mass. was opened in January, 1964, contracts have been won for 14 Navy surface vessels with a value of more than $385 million, Lewis reported.

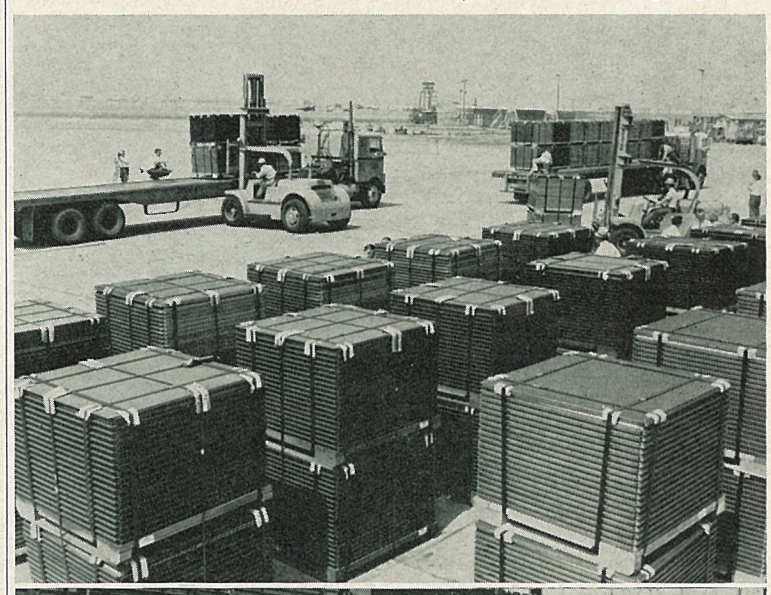
In the submarine field, Lewis said, General Dynamics was awarded a $111.4 million Navy contract during July for construction of four nuclear attack submarines, and a $3.2 million Navy contract to construct two two-man research submarines.

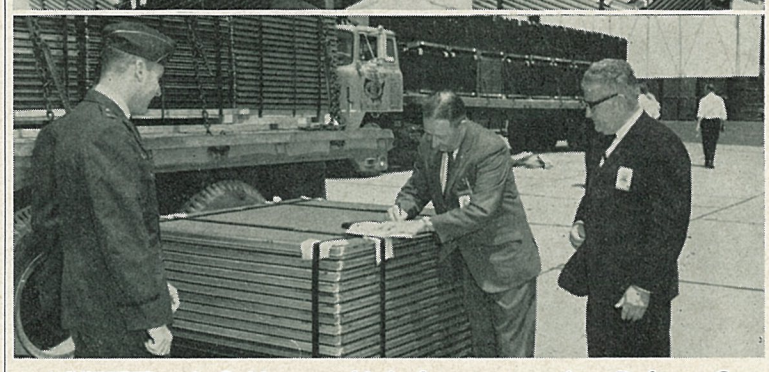
Mats Shipped For AF Test

Forty-two truck and trailer loads of airfield landing mats moved out of Convair's Lindbergh Field plant last month bound for Dyess AFB, Texas, in the first shipment of matting fabricated under the current subcontract for Kaiser Aluminum and Chemical Sales, Inc.

Each day for eight days, six truck-trailer combinations, each loaded with 18 pallets — 360 mats — left San Diego to transport the

(Continued on Page 2)





ACCEPTED—J. C. Nemec, chief of support section, Defense Contract Administration Services (center), signs acceptance for Convair-fabricated airfield landing matting before shipment to Dyess AFB, Texas, last month. At left is Col. J. R. Ourand, DCAS plant representative; at right, J. C. LeBlond, Kaiser Aluminum and Chemical Sales Inc. site manager.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between August 1 and August 15.

Thirty-year: Dept. 420-4, F. L. Kany.

Twenty-five-year: Dept. 031-0, W. Arends, W. C. Burgess; Dept. 041-0, H. L. Wade; Dept. 059-0, H. L. Henrie; Dept. 195-4, W. Vierra; Dept. 250-3, A. Sjostrom; Dept. 250-4, R. T. McMurry; Dept. 250-5, H. L. Teague; Dept. 756-0, N. J. Kinnischtzke; Dept. 987-0, J. E. Merk, S. Special.

Twenty-year: Dept. 102-2, T. F. McCubbin Jr.; Dept. 149-2, E. M. Grace; Dept. 401-4, D. A. Prentice; Dept. 511-1, W. H. Byam; Dept. 566-1, C. P. O'Carroll; Dept. 964-4, F. M. Boley.

Fifteen-year: Dept. 059-2, M. L. Burke; Dept. 130-1, B. H. Diffenbaugh; Dept. 131-5, C. B. Scully; Dept. 142-1, E. J. Hazer; Dept. 143-3, T. A. Anibal; Dept. 196-0, R. E. Gunnerson; Dept. 250-5, J. W. Sunder; Dept. 401-5, R. Lang; Dept. 405-0, W. F. Van Dusen Jr.; Dept. 578-3, S. J. Bucaro; Dept. 759-0, R. E. Orozco; Dept. 819-0, E. L. March; Dept. 832-3, E. M. Christensen, C. G. Young; Dept. 833-2, J. C. Cimble; Dept. 850-1, D. B. Courtois; Dept. 961-4, R. F. Summers; Dept. 961-7, J. D. Rose Jr.; Dept. 964-4, W. C. Dallman; Dept. 987-0, O. Valdez.

Ten-year: Dept. 002-0, L. W. Shaffer; Dept. 059-0, A. H. Wolfson; Dept. 059-3, A. K. Stevens; Dept. 124-0, L. E. Watson; Dept. 125-0, M. M. Engle; Dept. 130-1, H. J. Albright Jr.; Dept. 130-5, K. W. Wulfemeyer; Dept. 141-3, G. J. Williams; Dept. 143-1, R. S. Killgore; Dept. 143-5, G. Howell; Dept. 145-1, N. E. Tipton; Dept. 191-0, F. S. McCullough; Dept. 193-3, P. R. Jacobsen; Dept. 410-0, J. E. Fleming; Dept. 454-0, F. Yochim; Dept. 507-0, C. R. Olden, R. R. Varney; Dept. 543-3, R. J. Nichols; Dept. 544-4, T. J. Nilson; Dept. 551-2, M. T. Raaberg; Dept. 566-3, E. E. Espinoza; Dept. 572-1, C. J. Kropp; Dept. 578-1, S. R. Harrison; Dept. 585-3, A. L. Greensite; Dept. 596-0, C. N. Abeyta Jr.; Dept. 744-0, M. A. Thomas; Dept. 756-0, F. L. Armstrong.

Dept. 818-1, J. E. Hoy; Dept. 819-0, R. H. Kirmayer; Dept. 832-3, L. P. Jones; Dept. 834-2, F. P. Cook; Dept. 845-3, L. K. Papke; Dept. 847-1, M. Mariscal; Dept. 951-7, F. A. Lees; Dept. 953-3, L. B. Gilmore; Dept. 956-0, A. B. Decker; Dept. 957-0, C. E. Clark, J. P. Giordano; Dept. 962-2, G. W. Schmucker; Dept. 963-3, R. E. Evans, R. W. Wood; Dept. 963-4, G. B. Wood; Dept. 963-6, J. Saugier; Dept. 963-9, H. N. Norton; Dept. 966-5, F. B. Anthony Jr.; Dept. 966-6, R. P. Day; Dept. 969-3, G. J. Unimski; Dept. 974-4, H. S. Elliott; Dept. 979-1, J. J. La Palme, B. F. Willoughby; Dept. 979-2, J. A. Matthews; Dept. 979-4, G. F. Klikna; Dept. 984-2, T. P. Young; Dept. 984-3, W. D. Taylor; Dept. 985-1, A. F. Hyland, G. N. Vick Sr.

STROMBERG-CARLSON

Ten-year: Dept. 8621, L. M. Chapman.

Papers Presented

CONVAIR

BINGHAM—R. H., Dept. 583-2. "A Launch Vehicle Sizing Technique," presented by F. D. Breuer at American Astronautical Society's Space Flight Mechanics Specialists Conference, Denver, Colo., July 6-7.

Papers presented at IEEE/1966 Symposium on Electromagnetic Compatibility, San Francisco, July 11-13:

JAMBOR—L. D. and E. HABER, Dept. 542-0, "Analytical Prediction of Transient Coupling"; A. H. MILLS and P. L. PELLAND, Dept. 542-0, "Field Intensities Around a Dipole Antenna for Distances Comparable to Antenna Length"; D. W. MOFFAT and R. M. HENKEL, Dept. 542-0, "Minimizing Test Time on New Apollo Instrumentation Ships."

Papers presented at IEEE/Annual Aerospace Conference, Seattle, Wash., July 11-15:

R A. ACKLEY and S. ROGERS, Dept. 593-0. "A Manned Systems Simulator for Design and Research"; E. K. YAGER, Dept. 507-0, "A Technique for Captive Trajectory."

In-Plant Training

ORIENTATION

NEW EMPLOYES—Educational services staff, Lindbergh Field, ext. 491. Bldg. 14 auditorium, Tuesday, Aug. 16, 8 a.m. Kearny Mesa, ext. 1931, Bldg. 17, Room 1, Monday, Sept. 12, 8 a.m.

PROFESSIONAL/TECHNICAL

RELIABLE ELECTRICAL CONNECTIONS—Educational services staff. For further information and quota call ext. 1931, Kearny Mesa.

AFTER HOURS CLASSES
San Diego Junior College

FALL SEMESTER—What subjects are you interested in? Previous on-site courses have included math for electronics, technical writing, introduction to digital computers, computer logic and circuitry, quality control and reliability, technical math, blueprint reading, numerical control, tool design, electronics, supervision. To aid in advance planning, please send AVO to Dick Forrest, zone 130-30, indicating courses you are interested in.

PROGRAMMED SELF-STUDY — A limited number of programmed texts in the subject fields of mathematics, statistics, probability, electricity, electronics, slide rule, English review, computer language and others are available in the educational services offices, Room 4, Bldg. 17, Kearny Mesa. These may be checked out for home study. Office hours 8 a.m.-5 p.m., ext. 1931, Kearny Mesa.

General Dynamics News

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Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

Awards

CONVAIR

Employe Suggestion awards approved for the week ending July 15.

Dept. 015, L. W. Tracy; Dept. 016, O. B. Carrera, M. R. Van der Veer; Dept. 123, D. R. Pierce, A. K. Raines and R. J. Robinson (joint award); Dept. 250, A. R. Dyer; Dept. 756, W. J. McKillip (two awards); Dept. 818, V. L. Akers; Dept. 833, A. E. Hamilton; Dept. 973, J. A. Dailey; Dept. 979, E. N. Coleman Jr., G. I. Williamson; Dept. 987, F. J. Mathis and S. Robles Jr. (two joint awards), J. N. Rogers; Dept. 989, L. L. Ripley.

Dept. 985, J. G. Beaton and J. Oltion (joint award), M. W. Bemus.

Employe Suggestion awards approved for the week ending July 22.

Dept. 002, E. Fountain; Dept 015, P. Perrero, H. B. Wilson, (two awards), E. W. Woods, D. H. Yaeger; Dept. 019, O. R. Bracey; Dept. 101, F. S. Pierce; Dept. 123, G. C. Gonzalez, R. E. Kauffman, F. W. Wendt; Dept. 125, O. R. Sorensen; Dept. 141, G. J. Williams; Dept. 143, D. S. White; Dept. 146, Ralph De Sola; Dept. 491, C. P. Rolla; Dept. 543, R. J. Nichols; Dept. 574, W. H. West; Dept. 732, G. A. Barkdull (two awards); Dept. 733, C. W. Maxfield; Dept. 756, L. N. Newlin; Dept. 780, B. C. Anthony; Dept. 953, H. T. Murphy; Dept. 973, R. R. Lammert; Dept. 974, C. M. de la Bretonne; Dept. 979, P. A. Manning, L. M. Shenise; Dept. 987, F. J. Mathis, S. Robles Jr.; Dept. 988, E. J. Carr; Dept. 989, J. B. Jessop, J. D. Willingham.

Employe Suggestion awards approved for the week ending July 29.

Dept. 001, S. Mazzilli; Dept. 031, M. W. Coulston; Dept. 141, G. E. Stachwick; Dept. 143, M. E. Howell, F. B. Shockley; Dept. 250, W. Goetz and H. Heringhaus (joint award); Dept. 454, A. A. Carlson; Dept. 744, F. G. Crosthwaite; Dept. 759, J. W. Hudson and G. D. Lundquist (joint award); Dept. 963, A. F. O'Brien, Jorge Zorrilla; Dept. 989, L. W. Howerton.

Retirements

CONVAIR

BAKER—Esther P., Dept. 524. Seniority date Aug. 25, 1950, retired July 29.

BAKKE—Marian H., Dept. 836-1. Seniority date Sept. 30, 1947, retired July 29.

CESSNA—Ernest F., Dept. 972-0. Seniority date Sept. 26, 1952, retired July 11.

DIERKS—C. F. Jr., Dept. 523-6. Seniority date June 26, 1956, retired July 30.

DONOHO—E. H., Dept. 393-6. Seniority date July 17, 1961, retired July 30.

FURNESS — Adelaide, Dept. 780-1. Seniority date March 7, 1956, retired July 29.

GRIMM—W. H., Dept. 756-0. Seniority date Aug. 22, 1950, retired July 15.

HARVEY—J. A., Dept. 835-2. Seniority date Nov. 24, 1950, retired July 22.

HEYOB—Leo, Dept. 403-3. Seniority date Jan. 3, 1955, retired July 10.

HOLDENER—Joseph F., Dept. 572-1. Seniority date Feb. 18, 1952, retired July 29.

McCAMBRIDGE—J. E., Dept. 193-3. Seniority date May 22, 1941, retired July 29.

MILLER—Charles E., Dept. 625. Seniority date Aug. 11, 1959, retired June 3.

PETERSON—L. N., Dept. 250-2. Seniority date Aug. 20, 1951, retired July 29.

ROGERS—J. N., Dept. 987. Seniority date Oct. 30, 1950, retired July 15.

SAUNDERS—J. C., Dept. 832-3. Seniority date March 5, 1952, retired July 29.

WENINGER—Harry, Dept. 251-1. Seniority date Nov. 2, 1953, retired July 29.

Personals

CONVAIR

I wish to extend my sincere thanks to Convair friends for the flowers and many kindnesses received at the death of my husband, Gene McClure, Dept. 587-3.

Pat McClure

* * *

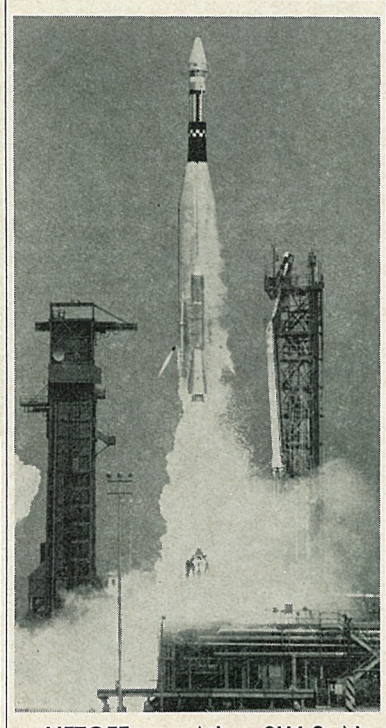
I wish to express my appreciation for the many flowers, cards and kindnesses at the death of my daughter, Cathi Ann.

Patricia Vogele
Dept. 962-1

* * *

The family of L. E. "Woody" Wilson thanks all of his Convair friends for their thoughtfulness and the beautiful flowers at his death.

Mrs. L. E. Wilson and family



LIFTOFF — Atlas SLV-3 No. 5305 boosts Gemini 10 Agena target vehicle into space from Complex 14 at Cape Kennedy. Launch placed Agena in 185-mile circular orbit.

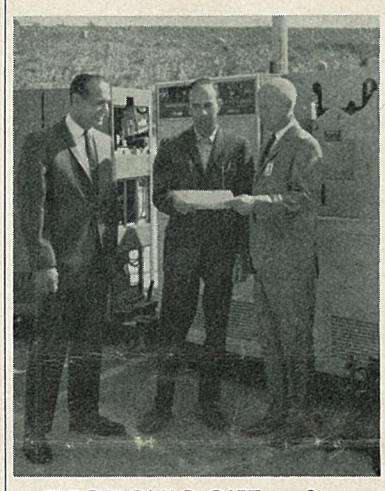
Mechanic Trainees At Test Site Lab Given 14-hr. Course

A concentrated 14-hour training course was held the middle of last month for a group of young men assigned to the Convair Harbor Drive Test Site structures laboratory as mechanic trainees.

Demonstrations and visual instruction were conducted in the shop to give the 11 trainees as much practical information as possible before they were put on the job.

Instruction included sessions in basic blueprint reading; standard test lab practice and procedures in simple layout, tolerances, and fabrication methods; basic hydraulics and related plumbing; whiffletrees and use and applications of tension pads; identification and nomenclature of metals and other subjects related to laboratory test work; use of tools; safety and good housekeeping.

Wayne Turner and Sam Galasso of educational services instructed and coordinated the course. Dick Schulz of safety engineering conducted the session on safety, and F. O. Peterson of the structures lab was in charge of the session on hydraulics. H. K. Parson and A. E. Jones, engineering test lab mechanics, explained and demonstrated use of hand and power tools and their proper application.



ELECTRONIC GIFT — Stromberg-Carlson Data Products donates Recordak data computer output microfilmer to San Diego State College for use in engineering school. In photo, Prof. W. L. Brown, professor electrical engineering at State (center), accepts equipment on behalf of Dean Martin P. Capp from J. W. Swank, manager of industrial relations, right, and Roy Dieter, plant engineer, making presentation for Manager C. V. Shannon.

Matting Shipped For AF Testing

(Continued from Page 1)

14,860 mats half way across the country. Altogether, 743 pallets, made up of 20 mats apiece, were fork-lifted onto the trucks. First truckloads left the plant July 21; the last moved out July 29.

The 240,000 square feet of matting will be laid as the main landing section of a runway and portions of taxiways for an Air Force airfield landing mat evaluation.

Packaging of mats scheduled for overseas shipment began last week. The pallets destined for the military overseas are securely encased in plywood containers.

Mishler Will Chair Section of ASQC

H. H. Mishler, a Convair division senior quality control engineer in Dept. 959-0, has been installed as chairman of the San Diego Section of the American Society for Quality Control.

Other officers include J. Z. Mraz of the DCAS plant representative's office at Kearny Mesa, secretary, and P. E. Gelles, a senior quality control engineer in Dept. 141-2, treasurer.

L. I. Fredrickson of Convair Dept. 140-1 is retiring chairman.

General Dynamics men holding chairmanships are J. R. Frogge, Dept. 146-4, booster; D. C. Ruzich, Electronics-SD, membership; W. F. Rice, Dept. 146-3, professional development; and C. A. Miller Jr., Dept. 145-1, historian-librarian.



COST REDUCERS—W. W. Fox, center, director of product design, presents commendation centificates to P. S. Rader, left, and C. F. McMenamy. Department's high man for quarter was McMenamy with $198,016 in cost reduction savings.

Drafting Course Heads List Of Cost Reduction Projects

Eleven Convair engineering department members have received certificates of commendation from W. W. Fox, director of product design, for cost reduction projects approved during the last quarter that will save the division $295,214.

C. F. McMenamy of Dept. 566-3 was "high man" among the group with cost reduction savings audited at $198,016.

McMenamy's project involved a three-week concentrated drafting indoctrination course for high school and junior college graduates with school mechanical drawing and drafting training but lacking industrial experience.

Funding for the intensive training course is provided under the federal Manpower Development Training Act through the San Diego Mayor's Committee for Jobs, Inc.

The course has helped the Convair engineering department decrease its acute shortage of draftsmen and release more experienced draftsmen for higher-level tasks.

H. P. Williams, chief of value engineering/design services, said work being done by the first 30 graduates has "more than met our expectations."

P. S. Rader of Dept. 572-3 shared equally in a $73,286 cost reduction project with J. E. Merk of Dept. 987-0 under which X-ray facilities have been installed in the welding department at Kearny Mesa for immediate X-ray inspection of welded duct assemblies.

Previously, the fusion-welded assemblies had to be transported from the welding site to the X-ray department or an outside vendor firm for X-ray and returned if a defect was found. This resulted in a delay of several days and unnecessary paperwork and transportation costs.

Others receiving certificates, their department numbers and audited cost reduction amounts are:

J. J. Herring, 565-1, $21,154; J. D. Anderson, 574-1, $12,894; T. A. Billings, 563-0, $5,276; D. R. Roberts, 526-8, $5,276; R. V. Bucciarelli, 565-1, $3,608; J. H. Puhr, 565-1, $3,608; W. J. Wood, 566-1, $2,990; E. V. Marikle Jr., 507-0, $2,974, and W. S. Williamson, 533-3, $2,775.

Fox commended the men for their ingenuity in achieving the "good hard savings" for the division.

The engineering department under the direction of E. R. Peterson, vice president-research and engineering, at the end of the first quarter this year began an intensified "campaign" to obtain more cost reduction and value control savings. Audited value control project savings for the department for the second quarter totaled $2,064,366.

College Will Offer Varied Classes—If

San Diego City College will offer the following courses, if interest warrants, during the fall semester at Convair division facilities:

Calculus for electronics, computer logic and circuitry, elements of structural design, introduction to digital computers, math for electricity and electronics, numerical control, technical math, technical writing, tool and die design, and transistors — theory and application.

A minimum of 20 students will be required for each class. If interested, advise Richard Forrest, KM mail zone 130-30, by AVO by Aug. 19.

Courses will begin the week of Sept. 12.

Silver Knight Award Earned by Don Fagan

Donald L. Fagan, manager of Convair's Western Test Range operations, was presented the Silver Knight of Management award, highest award given by the National Management Association, at Convair Vandenberg Management Club's installation dinner meeting.

Fagan was a charter member of the club when it was formed in 1960.

The club in nominating Fagan for the honor cited his "enviable record" of professional management, including success of Atlas launches, $2.5 million in cost reduction program savings and more than 3½ million manhours without a lost time accident.

Leonard L. Jella, chief of reliability control, was installed as new club president. Other new officers are James L. Gardner, executive vice president; Arnold H. Hoines, administrative vice president; Sam W. Botta, recording secretary; R. J. Cairns, financial secretary, and Don B. Wilson, treasurer.

Board members installed were Curtis A. Johnston, Walter L. Johnson, Ernest J. Galbos, Norman D. Pagel, H. R. Holeman, Denny T. Barber, Dan K. Jaeger, Tom Heter, George W. Cooper, James L. Morris and Ernest A. Millar.

Frank H. Burris, last year's administrative vice president, was presented the president's award trophy and Arthur F. Sanger, scholarship committee chairman, the outstanding committee chairman's trophy.

Melvin G. Holleb, chairman of the management development committee, received the trophy for outstanding individual contribution and Vern O. Worrell the outstanding booster trophy.

Scholarship Honors Veteran Director

(Continued from Page 1)
first all-metal aircraft.

His pioneering role in the development of all-metal wing construction, integral fuel tanks and quickly demountable power plants.

GUIDED DESIGN OF PBY SERIES

His design of many devices for which he won patents; for example, the Bendix-Laddon disc wheel and integral brake which became standard aircraft equipment in the late twenties.

His design of Consolidated Aircraft's twin-engine flying boat, the XPY-1, for the Navy. The airplane was adapted for commercial operation as the "Commodore."

His guiding role in the design, development and construction of the PBY, which distinguished itself in World War II. Incorporated in it was the first integral wing tank, the key to the capability of commercial transports to carry sizable payloads across the Atlantic.

His supervision of the development and production of the World War II B-24 bomber, the famed "Liberator."

His engineering leadership in the conception and design of the post-war B-36 intercontinental bomber and later, as Convair executive vice president, his supervision of the bomber's development and early production.

His direction, after World War II, of the development of the twin-engine Convair-liner transport.

His establishment of the research and development organization at Vultee Field, which created the early concepts that led to the Terrier missile, the Atlas space vehicle, the Delta-wing platform and hence the F-102, F-106 and B-58.

"To this day," the two boards continue in their scroll, "his foresight, his wisdom, and his talent in leading and training men continue to serve and guide this Corporation's progress and growth, and it is our expectation that his energy and enthusiasm and good humor will long support us."

FORMER CHIEF ENGINEER

An automotive engineer in Detroit before World War I, Laddon joined the U.S. Air Service Engineering division and became chief of its design branch at McCook Field in 1919. From 1927 to 1935 he served as a chief engineer at Consolidated Aircraft; he was elected to the board of directors in 1931.

From then on he rose to vice president-engineering, 1935-1939; vice president in charge of engineering and works and general manager, 1939-1941; and executive vice president and general manager, 1941-1943. With the merger of Consolidated Aircraft and Vultee Aircraft in 1943, he became executive vice president of Consolidated Vultee (Convair). He resigned from that post in 1948 and continued to serve as a director. In 1954 when Convair became a division of General Dynamics, he was elected a director of the Corporation.

Laddon was born in Garfield, New Jersey, in 1894. He received a B.S. degree and an honorary doctor of science degree from McGill University.

Paschal to Present Paper at Congress

Frank L. Paschal, FW health physics administrator, will present a paper at the First International Congress of the International Radiation Protection Association in Rome, Italy, Sept. 5-10.

The paper is "A new concept in film badge design," authored by Paschal, J. D. Eastes and M. L. Maurer. It reviews the concept used in the new personnel monitoring badge installed at Fort Worth division last year.

Paschal is among 18 delegates selected by IRPA to attend. He formerly served as secretary and member of the directorate for the organization.

IRPA is comprised of national and regional societies.

People Mobility

Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

CHARLES G. JULIUS JR. (1961) from Convair division to administrative assistant, General Atomic; **GEORGE E. WILLIAMS** (1941) from Pomona to tool engineer, Convair; **HELMUTH H. LAUE** (1958) from Electronics, San Diego to electronics engineer - senior, Convair; **FRANK BERRY** (1957) from Electronics, San Diego to Convair as assistant foreman; **GERALD S. MATHEWS** (1956) from Convair to logistics, Fort Worth; **JOSEPH F. SYLVIA** (1959) from Convair to logistics, Fort Worth; **JOHN R. WEAVER** (1953) from Convair to Pomona as assistant foreman; **ALLEN E. LANGE** (1963) from Convair to senior electronics engineer, Pomona; **KLAYTON M. HEMMINGSON** (1952) from Convair to assistant foreman, Pomona; **WALTER E. COVINGTON** (1952) from Convair to senior staff, Canadair, Ltd.; **JOSEPH CATALINO** (1950) from Convair to Electronics, Rochester as manufacturing control analyst; **ARTHUR L. CONRAD** (1943) from Convair to chief of PERT, Quincy; **FRANKLIN D. MARTIN** (1959) from Electronics, San Diego to Electronics, Rochester; **JAMES H. GURLEY** (1963) from Electronics, Rochester to Washington, D. C. field office; **JOHN D. HUNT** (1965) from Electronics, Rochester to Quincy; **ALBERT R. EVANS** (1951) from Electronics, San Diego to electronics engineer - senior, Convair; **THOMAS G. FLEMING** (1952) from Electronics, San Diego to Convair military space programs.



SUPERSONIC TANK—F-106A is updated with new version external fuel tank for which Convair division has contract to produce 271 for Air Force. Wing tanks can be carried at supersonic speeds; refueled in flight; and jettisoned, if necessary. They will be installed on F-106 aircraft by AF.

F-106 TACAN Contract Won By Electronics

A $6.2 million contract for U. S. Air Force F-106 interceptor tactical air navigation (TACAN) systems has been awarded to Electronics division, Rochester, by Hughes Aircraft Co.

The new TACAN production unit, the first to use micro-electronic circuitry, will reduce to one-third the size and weight of the present F-106 system. It is designed to provide 450 hours of maintenance-free operation because of microelectronic circuitry. TACAN is part of the MA-1 radar armament control system that Hughes originally built for the F-106.

TACAN provides F-106 pilots with range and bearing from ground stations and range between planes equipped with similar TACAN. Range information between planes is used for rendezvous and refueling operations. A built-in digital computer, rather than the analog computer previously used, will provide faster and more reliable information to the pilot.

The TACAN unit which Electronics division will build will have built-in self-test gear to check out the operational status of the system. The self-test automatically checks the bearing and range accuracy, power output and antenna operating condition (voltage standing wave ratio). Present F-106 TACANs do not have self-test capabilities.

If a component in the unit fails, the pilot is warned immediately, and he can use other navigational aids. Indicators on TACAN will spot the non-working component for replacement by ground maintenance crews.

Tuning of the new General Dynamics TACAN is totally electronic rather than electromechanical.

Forty per cent of the newly developed TACAN is of micro-electronics construction. Only four vacuum tubes are used. Ultimately these tubes will be replaced by solid state amplifiers.

Electronics Plans Expansion of Lab

A new $400,000, two-story building will be erected by Electronics division on plant grounds at Rochester, Parker Painter Jr., general manager, reported.

The building will add 10,200 sq. ft. to present laboratory facilities.

Aircraft Engineers Go to Sea For ASW Study Aboard Carrier

Seven engineers from Convair division's advanced military aircraft programs study group are aboard the USS Bennington off the West Coast for a week observing anti-submarine warfare (ASW) aircraft operational training exercises.

Since January the division has been conducting a one-year unfunded study on carrier-based ASW aircraft for the U. S. Naval Air Systems Command.

Earl W. Boteler, manager of advanced aircraft programs, is directing the study group's activities on the Bennington. Others participating are Sterling V. Starr, Robert R. Wahler, Duane D. Johnson, John A. Turner, Albert W. Morgan and Frank Machado Jr.

Nine other engineers from the group previously spent a week aboard the USS Hornet off the West Coast observing pilot carrier qualification operations and studying ASW aircraft maintenance and handling problems.

They were Robert G. McGeary, Richard C. Lingley, Clark Kerr Jr., Stanley T. Piszkin, William A. Floyd, Wesley E. Woodson, Charles W. Chapman, Oliver F. Oldendorph and Raymond J. Frindt.

W. D. Wood, manager of military requirements, said information obtained by the two groups aboard the carriers will support both Convair division and General Dynamics ASW study activities.

"We are putting a lot of emphasis on building up an understanding of carrier-based aircraft," Wood said. "Knowledge gained also will be useful in establishing design criteria for future aircraft needs such as a VSX replacement for the currently operational S2E anti-submarine, carrier-based aircraft."

If one copy is sufficient, why order more?

Marines in Viet Nam Use Tents Built at Ardmore Facility

General Dynamics' Ardmore, Okla. facility is turning out a variety of portable, quick-erect tents for the Marine Corps.

The facility is working on a firm order for 160 of the small "Sentinel" expandable shelters and has a request for 180 of a larger model.

Two prototypes of a nose dock — designed to cover the nose section of most military fighter planes — have been delivered to the Marine Corps for evaluation.

The smaller tent is 10 feet wide, 20 feet long and 8 feet high. It folds compactly into a case 26 inches wide, 6 inches deep and 8 feet long. Two men can erect it — the tent unfolds like an accordion — in about 30 seconds!

Forty are being used by combat Marines in Viet Nam as command posts, advanced first-aid stations and temporary barracks.

The larger version measures 16 feet wide, 10 feet high and 35 feet long when expanded — providing 600 sq. ft. of floor space.

The larger version can be used for equipment maintenance, advanced hospital units or warehouses.

Made of aluminum and high-quality aerospace textiles, the tents are lightweight and durable.

A portable nose dock was demonstrated to Marine Corps representatives at Fort Worth division recently. The dock was "fitted" to various Marine Corps fighter aircraft of types now being used in Viet Nam. The one dock configuration adequately covered all planes — plus the F-111A.

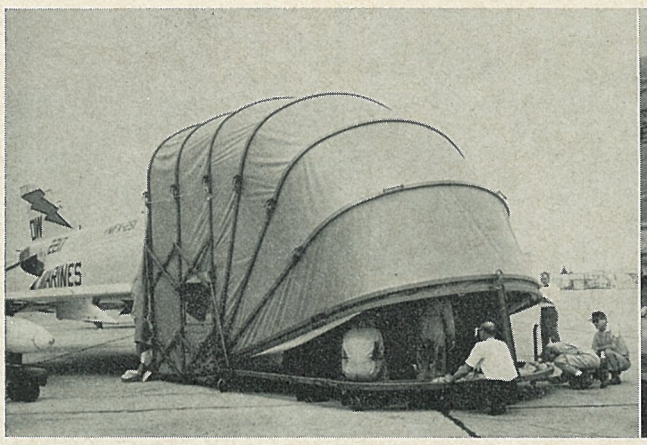
A small crew erected the dock in five minutes and moved it away in less time.

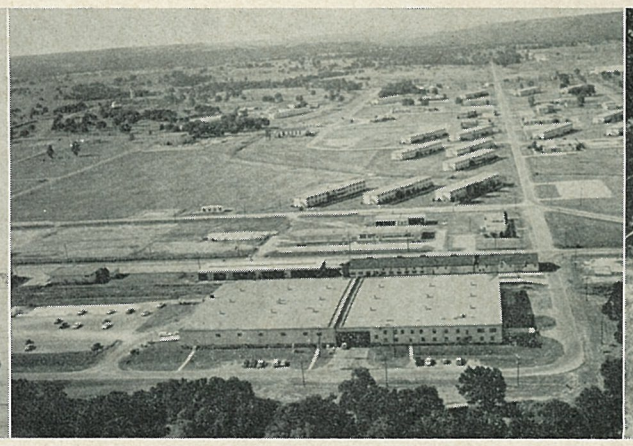
Expandable Tent Patent Issued

Phil Cummins, Fort Worth division Dept. 15-0, has been issued a patent for a Multi-Purpose Utility Structure — an expandable tent.

The tent has an expansion ratio of 40 to 1.

In addition, the side walls fold inwardly, reducing the package size and providing a self-contained metal "container" around the tent when in stored condition.







TENT MAKERS — Tents for the Marine Corps are being produced at General Dynamics' Ardmore, Okla. facility (center photo foreground). One type, a quick-erect nose dock for aircraft to permit work in inclement weather is demonstrated at left. At right, patent certificate for expandable tent is presented to Phil Cummins, center, inventor, by C. M. Woodward, patent counsel. Clyde Ford, Ardmore manager, is at right.

Seven Junior Colleges Serve San Diego Area

Seven junior colleges in San Diego County offer lower-division courses in arts and sciences, business, teaching, technical, engineering and other pre-professional fields.

They also provide part-time vocational courses for employed workers seeking to improve skills and knowledge and offer a wide range of evening courses for adults.

San Diego junior colleges include San Diego City College at 1425 Russ Blvd., Mesa College at 7250 Artillery Rd. and Evening College, also with offices at 7250 Artillery Rd.

Grossmont Junior College at 8800 Grossmont College Dr., El Cajon, serves residents in the eastern part of the county.

Southwestern Junior College at 5400 Otay Rd., Chula Vista, serves South Bay area residents. Mira Costa College of the Oceanside-Carlsbad Junior College District serves the Oceanside, Carlsbad, Camp Pendleton and San Luis Rey area.

Palomar Junior College in San Marcos serves the communities of Escondido, Fallbrook, Pala, Pauma Valley, Poway, San Marcos, Valley Center and Vista.

Expenses Paid When Traveling To Seminars

Convair last year paid registration, travel and per diem expenses for 556 employes attending 64 different technical and management conferences, seminars or institutes conducted or co-sponsored by colleges and universities, national organizations and industrial and research firms.

A total of 490 attended 37 technical sessions sponsored by various organizations.

Sixty-six others attended 27 management meetings sponsored by organizations and institutions.

Educational services pays enrollment fees for such courses. Travel, per diem and professional and technical society fees are paid by the employe's department.

Written requests for attendance at such meetings, approved by the department manager, are to be sent with registration forms to the chief of educational services **at least 10 days** prior to start of the seminar.

Each request is to include justification for sending the employe and information on how the division may benefit from the individual's attendance.

Educational Office Offers Counseling

Convair division educational services offers a wide range of counseling services for employes wishing to increase knowledge and upgrade abilities.

Educational services offices are in Bldg. 17 at Kearny Mesa, ext. 1931, and in Bldg. 16 at Lindbergh Field, ext. 491. Educational catalogues, course schedules and bulletins are available at each.

Everett Lindem is tuition refund and technical short courses coordinator, Emory Thurston is advanced degree study program, doctoral fellowships and General Dynamics merit scholarships coordinator and Richard Forrest is junior college and trade extension coordinator at Kearny Mesa.

Wayne Turner is educational services coordinator at Lindbergh Field.

Management conference and seminar information and arrangements are coordinated by Jack Croft, chief of educational services, KM ext. 1471.



DOCTORAL FELLOW—Charles A. "Tony" Miller Jr. has received a Convair division doctoral fellowship for work toward a Ph.D. in mathematics.

Three Engineers Earn Fellowship Awards

Three engineers have been awarded new Convair division doctoral study fellowship awards for full-time study toward Ph.D. degrees during the 1966-67 university year.

Charles A. "Tony" Miller Jr., a reliability engineer in Dept. 145-1, will work toward a doctorate in mathematics at the University of California at San Diego.

Others receiving new doctoral awards are Herbert Moskowitz, a senior design engineer, and Paul Lee Nunez III, a research engineer. Both have been on educational leave during the past semester.

Miller has been an employe of Convair for five years and received his master's from San Diego State last June. His father is Charles Miller Sr., production planner in Convair Dept. 420-7.

Moskowitz, formerly with Dept. 693-2, is studying toward a doctorate in quantitative methods at the University of California at Los Angeles. He has been with General Dynamics since 1960 and received his master's from California Western University.

Nunez, formerly with Dept. 586-1, is working toward a Ph.D. in aerospace engineering at the University of California at San Diego.

Convair awards one or more fellowships for doctoral studies in engineering or related sciences each year. Fellowships pay up to $400 per month to a maximum of $4,000 per year.

Continuing study for doctoral degrees under Convair fellowships are Archibald Gay and K. Leon Montgomery. Gay is at the University of Southampton, England and Montgomery at the University of Pittsburgh. A third, Jack F. Ingber, completed doctoral studies at the University of California at San Diego this summer.



MASTER'S DEGREE WINNERS—Typical of Convair employes who recently received master's degrees are Stanley Maki, left, design specialist in Dept. 551-3, and Raymond E. "Gene" Monce, senior program analyst in Dept. 059-0, shown discussing work required for their degrees with Hal Rubin of educational services Dept. 130-3.

Seventeen Earn Advanced Degrees Through Study in Off-Duty Hours

Seventeen Convair employes this year have completed requirements for master's degrees through part-time study during off-duty hours in colleges and universities in the San Diego area. Their degrees are in mechanical, electrical and aerospace engineering, business administration, management science and mathematics.

They are:

Ola Brevig, 584-1, MSME; Philip B. Bunch, 966-4, MSAE; Kittridge R. Burton, 966-3, MSME; James E. Fithian, 967-3, MSE; Robert J. Conway, 582-0, MSME; Eugene O. Klimt, 551-2, MBA; Stanley C. Maki, 551-3, MSE; Arthur J. Mason, 551-3, MSE, and Robert B. McFarland, 553-1, MSBA.

Also Charles A. Miller Jr., 145-1, MSM; Raymond E. Monce, 059-0, MSMS; Nicholas Panos, 551-3, MSEE; Charles G. Perdue, 964-6, MSBA; Billy G. Pollard, 551-3, MSEE; George W. Smith, 587-3, MSME; Merrill H. Scott Jr., 951-9, MBA, and Edward K. Winslow, 580-1, MSAE.

Employes obtaining advanced degrees submit proof to industrial relations department through their supervisors and are given a salary review.

In addition to the personal satisfaction that comes from achieving an advanced degree, many receive salary increases and job promotion as a result.

Tuition Refund Limit Increased To $225 a Year Effective This Fall

Convair division has announced an increase in tuition refund limit from $150 to $225 per calendar year effective with the fall semester to encourage maximum possible participation by employes in continuing education.

Request for tuition refund (A346) MUST be submitted to educational services within three weeks after the starting date of the class and, if possible, should be submitted before the starting date of classes.

In addition, employes enrolled in approved graduate-level programs will be reimbursed for 75 per cent of all tuition costs above the $225 limit.

Tuition refunds are authorized for employes who successfully complete professional or technical courses given by accredited educational institutions that are related to the employe's job and considered of benefit to the Company.

The employe's supervisor must certify that the course or courses taken are job related. Educational services returns a signed copy of the form to the applicant if the refund is approved or notifies him in writing if it is disapproved.

A grade of "C" or better must be maintained and an official school grade report submitted to educational services before tuition payment is authorized and included in the employe's regular paycheck.

Last year, 1,342 Convair employes took advantage of the tuition refund program. They were reimbursed for costs totaling $58,933!

Payment is made for tuition only, including non-residence fees, and does not cover books, supplies, student activity fees or parking fees.

Part-Time Collegians May Adjust Work Week to Class Schedules

Employes of Convair division in their junior or senior year in bachelor programs, or working toward advanced degrees at colleges or universities in the San Diego area, may arrange a revised work-week to fit required classroom schedules.

Under irregular 40-hour work week provisions, the employe works the normal 40 hours on first or second shift but does not conform to regular shift starting times.

Hourly employes work an eight-hour day and salaried employes may work more or less than eight hours providing the weekly total is 40.

Advanced-degree students obtaining irregular work weeks must be in a degree program that is job related and of benefit to the company. Once established, the irregular work week schedule must be followed for the school term unless the employe drops the course or courses.

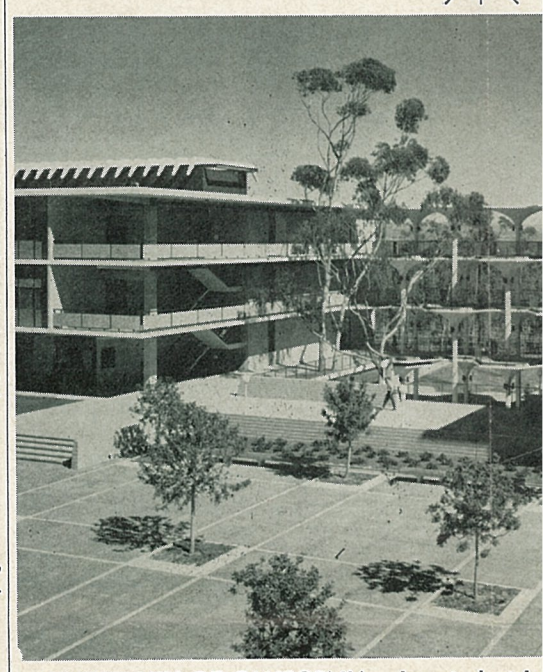
Employes working for advanced degrees and taking at least nine units per semester may arrange to work 30 hours per week and be paid accordingly, with work schedules arranged around class time when necessary.

Under the 30-hour work week program, study must be in the fields of engineering, mathematics, physics or related sciences. In addition to the regular tuition refund, an allowance of $5 per unit per semester is made to cover textbooks and thesis costs. Participants may work a regular 40-hour week during college vacations.

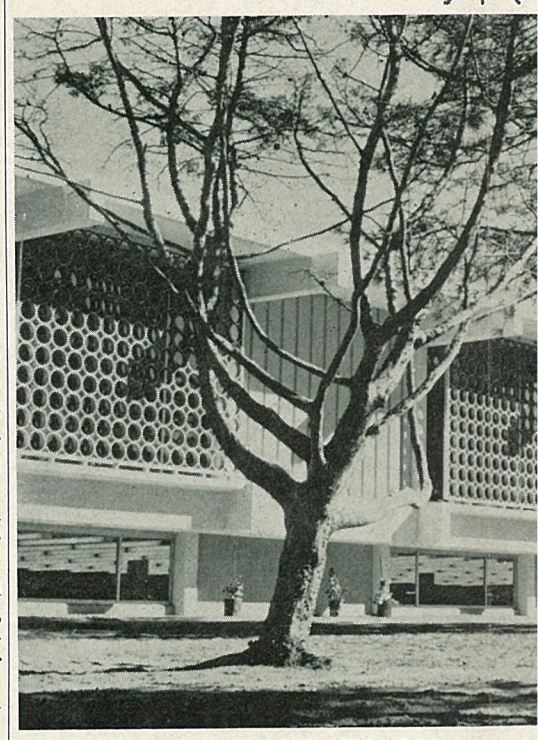
To apply for the irregular work-week program, the employe submits a request form (A3784), defining the requested irregular work schedule and approved by his supervisor and department head, along with the tuition refund request form (A346) to educational services, KM mail zone 130-30.



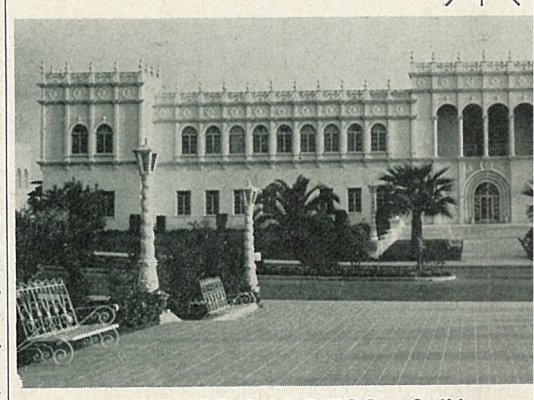
SAN DIEGO STATE—This campus is more w
ployes for advancing their education than any



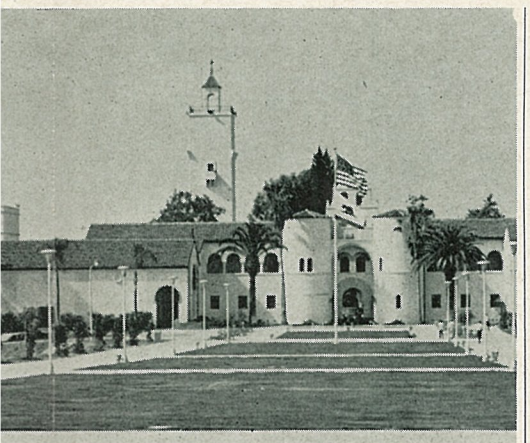
UNIVERSITY OF CALIFORNIA—Located at La
already has renowned faculty, including two No
members of National Academy of Sciences.

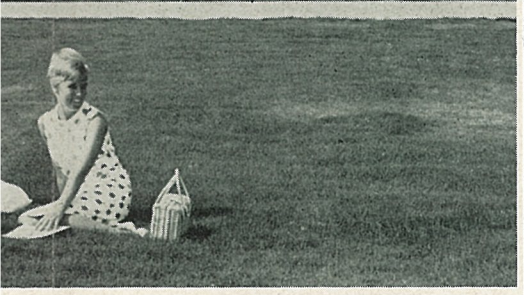


CALIFORNIA WESTERN—This 140-acre ca
Ocean.

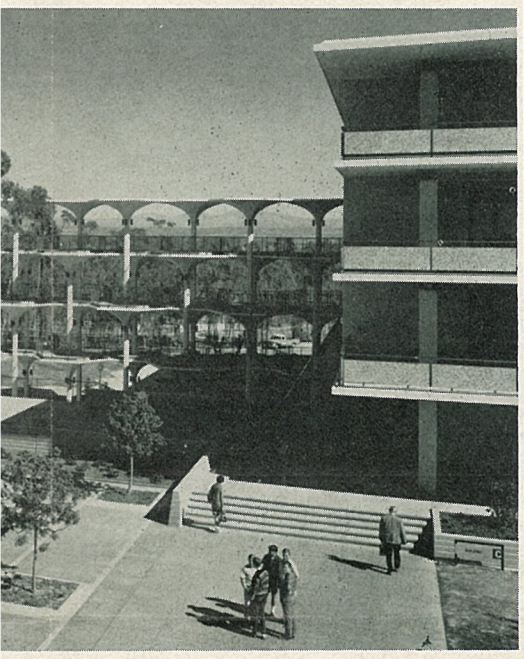


UNIVERSITY OF SAN DIEGO—Striking ar
221-acre Alcala Park campus.





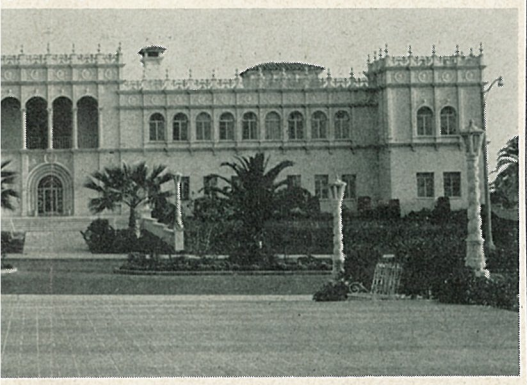
s more widely used by General Dynamics em-than any other in area.



ated at La Jolla, this rapidly expanding campus ng two Nobel laureates and more than a dozen ences.



-acre campus on Pt. Loma overlooks Pacific



iking architecture marks the buildings on this

Opportunities For Learning Abound In San Diego Area

Few communities in the nation can boast of the wide range of top-quality educational facilities and curriculum to be found in San Diego.

Opportunities for continuing education for General Dynamics employes in San Diego County are virtually unlimited. With assistance on tuition refund, counseling and special work week programs, any employe can improve himself and enhance his opportunities for advancement by continued studies in his career field.

Major institutions of higher learning in the San Diego area include:

San Diego State College with a 1,000-member faculty providing instruction in 50 major fields of study; University of California at San Diego, with present enrollment of 1,500, expected to reach 19,000 by 1975 on a planned $300 million campus; University of California Extension, with enrollment of 7,500 and instruction at various locations in the county; California Western University with both undergraduate and graduate schools; University of San Diego, also offering both undergraduate and graduate curriculum.

San Diego State Offers . . .

San Diego State College offers a four-year liberal arts course in more than 50 major study fields, graduate curricula leading to the master of arts and master of science degrees in 34 fields and to the two-year master of business administration and master of social work degrees.

The doctor of philosophy degree in chemistry is offered jointly by the college and the University of California at San Diego. Programs leading to teaching credentials also are available.

The master of arts degree is offered with the following majors: anthropology, art, biology, business education, chemistry, economics, education, English, French, German, geography, health education, history, industrial arts, mathematics, music, philosophy, physical education, physical science, physics, political science, psychology, social science, sociology, Spanish and speech arts.

Master of science degrees are offered with the following majors: aerospace engineering, astronomy, biology, business administration, chemistry, civil engineering, electrical engineering, geology, mathematics, mechanical engineering, physics, psychology and public administration.

The school of engineering offers graduate study leading to M.S. degrees in aerospace, civil, electrical and mechanical engineering.

State offers upper division and graduate courses in the late afternoon and evening.

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University of Calif. Offers . . .

University of California at San Diego awards master's degrees in aerospace and mechanical engineering sciences, chemistry, earth sciences, marine biology, mathematics, oceanography, philosophy and physics.

Doctoral degrees are awarded in aerospace and mechanical engineering sciences, biology, chemistry, earth sciences, economics, English, literature, marine biology, mathematics, oceanography, philosophy and physics.

Instruction leading to both M.S. and Ph.D. degrees provides specialized study in aerospace engineering, propulsion, gas dynamics, fluid mechanics, solid mechanics, structures and vehicle guidance and control, theoretical mechanics, advanced classical electrodynamics, quantum mechanics, astrophysics and advanced plasma physics.

Upper division courses are offered with the following majors: aerospace and mechanical engineering sciences, biology, chemistry, earth sciences, economics, language and linguistics, literature, mathematics, philosophy, and physics.

Oceanography studies leading to master's and doctoral degrees are designed to reveal inter-dependence of biological, chemical, geological and physical processes operating in the oceans. Doctoral students obtain experience on research vessels at sea.

UCSD's computer center operates high-speed multi-computer systems with students programming ALGOL, FORTRAN, COBOL and other problem-oriented computer languages.

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U of C Extension Offers . . .

University of California Extension has many programs open to any adult who can benefit from university-level study. Credit and non-credit courses and programs are offered at locations throughout San Diego County in art, agriculture, botany and plant chemistry, business administration, dance, economics, education, engineering, linguistics, mathematics, music, oceanography, philosophy, physical education, political science, psychology, real estate, science, sociology, Spanish, speech, theatre arts, travel and other subjects.

Convair division personnel serve as instructors in many of the business administration, engineering and mathematics courses.

Special certificate programs are offered in business, industrial relations, numerical analysis and real estate. Professional designation and senior award programs also are offered in business systems management, contract administration, purchasing - management and value analysis and engineering.

UC Extension also offers more than 250 high school and university-level correspondence courses in the fields of anthropology, art, astronomy, business administration, chemistry, classics, creative writing, dramatic art, economics, education, engineering, geography, geology, history, industrial relations, languages, literature, mathematics, music, nutritional sciences, philosophy, physics, physiology, political science, psychology, real estate, sociology, statistics and zoology.

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California Western Offers . . .

California Western University offers bachelor, master and juris doctor degrees in its college of arts and sciences, school of business and economics, school of education, school of law and graduate studies division.

Degrees offered by the graduate studies division are the master of arts in education, human relations and social science and master of business administration.

Undergraduate majors are art, biology, business, chemistry, communication, pre-dental, dance, drama, economics, pre-engineering, English, family life, history, humanities, pre-law, language, life sciences, mathematics, pre-medicine, pre-ministry, music, natural sciences, oral communication, pre-pharmacy, philosophy, and religion, physical education, physics, political science, psychology, religion, religion and religious education, social sciences, sociology and Spanish.

A two-year pre-nursing program also is offered in the college of arts and sciences.

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University of San Diego Offers . . .

University of San Diego in its College for Men and College for Women offers bachelor degree programs with courses in biology, business administration, chemistry, economics, education, English, fine arts and music, foreign languages, history, mathematics, philosophy, physical education, physics, political science, psychology, sociology, speech and theology.

Bachelor degrees are offered by the College for Men with the following majors: English, foreign language, philosophy, economics, history, political science, psychology, biology, chemistry, mathematics, physics and business administration.

A master of arts in teaching degree is offered in the five-year teacher education program. Pre-professional programs are offered in law, medicine, dentistry and related fields.

USD's School of Law is a co-educational institution with both day and evening divisions. It has an enrollment of more than 300, including several Convair division employes.

The part-time evening law school program, with a 10-unit per semester schedule, requires four years for completion with classes from 6 to 10 p.m. three days per week. Beginning law students are admitted in the fall semester only and a bachelor degree from an accredited college or university is a prerequisite.

Here Are Deadlines For Fall Semester Studies . . .

Following is brief deadline information for next quarter or semester at major educational institutions in the San Diego area.

San Diego State College — Registration Sept. 14; classes begin Sept. 19. Time to apply for registration for new or re-entering students is past.

University of California at San Diego — Undergraduate registration (except freshmen) Sept. 26; classes begin Oct. 3.

University of California Extension — Classes begin Sept. 26; enroll by second class meeting.

California Western University — Graduate and evening students registration Sept. 17; undergraduate registration Sept. 19 and 21; classes begin Sept. 22.

University of San Diego — Registration Sept. 7 and 8; classes begin Sept. 9.

Junior colleges — Contact college in your district for admission and registration information.

Time Keeper Developed For Tracking Stations

An advanced, compact, time generator for pinpointing exact time of operations in tracking and data processing systems has been introduced by Electronics division operations at San Diego.

The Model 173, as it is designated, was developed for use in the Applications Technological Satellite Range and Range-Rate Tracking System (ATSR) being built for NASA Goddard Research Center under a contract received late in 1964. ATSR systems have been installed as part of ground tracking sites at Goldstone, Calif., Rosman, N. C., Toowoomba, Australia. A fourth is going to Japan for installation prior to launch of the first Applications Technological Satellite this fall.

The time generator, as heart of the timing system, develops all reference signals, time code, and time-of-year (days, hours, minutes, and seconds) information for the tracking station.

The Electronics-developed time generator was the first all-integrated circuit single-unit time generator, and first to have all functions of the timing system combined on a single chassis. Space requirements are reduced from 45 inches of rack space necessary for the various components of conventional time generators to 10½ inches of vertical panel space.

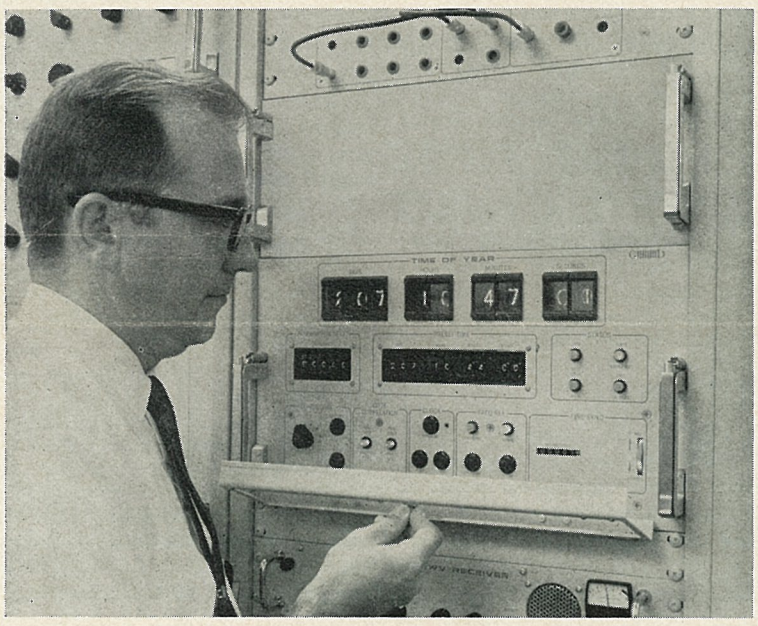
The unit is completely self-contained with an integral emergency power supply which provides for more than five hours of operation in event of external power failure. Required battery power is reduced from 200 watts to 12 watts, O. D. Greenwood, senior electronics engineer in Electronics ground electronics group, said.

"The use of integrated circuits made it possible to design a time generator much more compact than any other type available at that time. The Electronics-developed unit acts as a highly precise clock, providing extremely accurate identification in point of time of occurrence of events. It counts millionths-of-seconds time intervals and translates these into time-of-year and other electronic signals.

"It develops signals which indicate time-of-year in special codes used by the tracking system, and special controls enable it to synchronize time measurements to the National Bureau of Standards' master station, or any other master station, to within fractions of a second.

"The Model 173 time generator may be employed wherever a source of accurate time information is required."

Greenwood has been responsible for design of timing and data subsystems in the ATSR program. James Van Caster is ATSR project engineer for Electronics-SD.



"TIME RECORDER" — O. D. Greenwood, senior electronics engineer at Electronics - San Diego, releases cover on newly-developed Model 173 time generator, first all-integrated circuit single unit type. Electronics' device will be used to time-tag operations in ground tracking systems.

General Dynamics Awarded One of Three 'FDL' Contracts

General Dynamics Corporation, Litton Industries Inc., and Lockheed Shipbuilding and Construction Corp. are receiving identical contracts, each in the amount of $5,275,000 for development of fast deployment logistic ship (FDL) package proposals, plus $90,000 a month for maintaining a cadre of key personnel from the time proposals are submitted to the time a contract is awarded for the total package. The Navy's FDL project office states that proposals are due Jan. 31, 1967 and the total package is planned for award in June, 1967.

Each contract covers development of performance specifications and preparation and submission of a total package proposal for design, construction and delivery of FDL ships. The fast deployment logistic ship will enhance U. S. military rapid deployment capability by providing a high-speed, flexible sea lift force capable of rapid overseas deployment of tactical land force units in conjunction with air lift.

FDLs will be able to store embarked land force equipment and supplies aboard ship in a controlled environment for protracted periods in readiness for immediate use. In times of emergency, equipment could be unloaded either at established ports or over the beach in the absence of port facilities. Air lifted personnel would then marry-up with this equipment.

General Dynamics work under its contract will be performed at the Quincy, (Mass.) division.

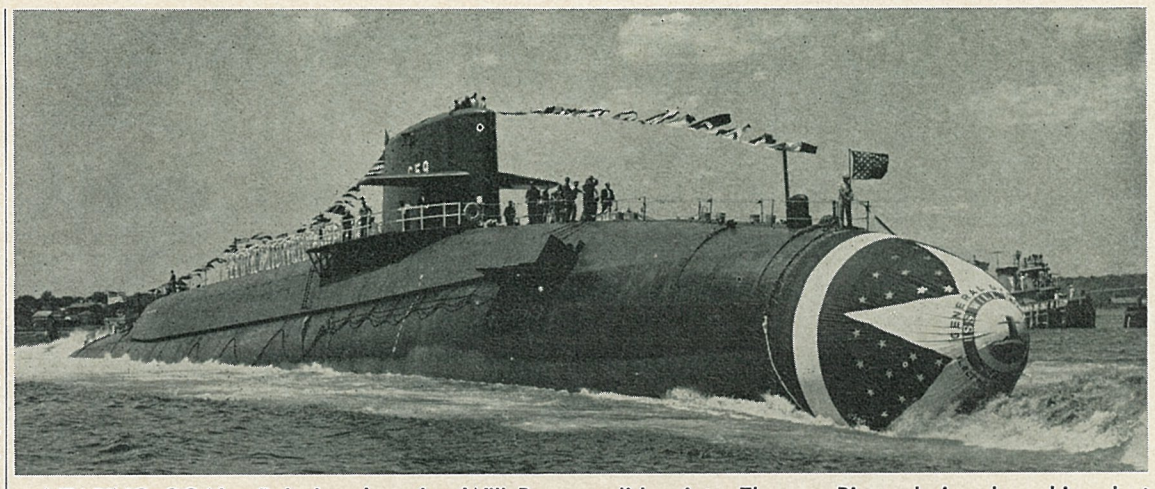
The Naval Ship Systems Command is awarding contracts for the FDL ship project office.

FDL Proposal Includes Film

Fort Worth division movie section recently completed a 24-minute color movie for General Dynamics' Marine System Group.

The film is being used in the Corporation's proposal for the Navy's Fast Deployment Logistic program. It shows the capabilities of Electric Boat, Electro Dynamic and Quincy — the three divisions comprising the marine group.

A motion picture crew of Jerry Ratliff, director, Gordon Smith, writer, and James Hayden, cameraman, visited each of the divisions in making the film. In-house work was done by Nick Mertes, animation camera; R. M. Benson, art; and Jack Thompson, editing.



NEARING GOAL—Polaris submarine Will Rogers slides into Thames River during launching last month by Electric Boat division. The 41st Polaris submarine, the launching of Will Rogers puts Navy within reach of goal of that number of missile-firing submarines in operation by next year.

S-C Will Build Training Aid For NASA Use

Stromberg-Carlson has received a $239,797 contract to provide voice communications equipment that will be used during simulation of operational conditions of a manned space program.

The equipment will assist in personnel training at NASA's Manned Spacecraft Center in Houston, Texas. Philco Corp., Houston Operations, a subsidiary of the Ford Motor Co., awarded the contract.

The equipment will be capable of originating, receiving and monitoring a wide variety of voice communications simulating operational conditions at voice ground stations. The system will train flight controllers in the use of facilities in preparation for placing an Apollo manned capsule in orbit.

S-C is furnishing similar communications equipment for the U. S. Navy at the Atlantic Fleet Weapons Range, Puerto Rico, and for use aboard three General Dynamics-built Apollo Range Instrumentation Ships.

F-111 Air Time Passes 1,300 Hrs.

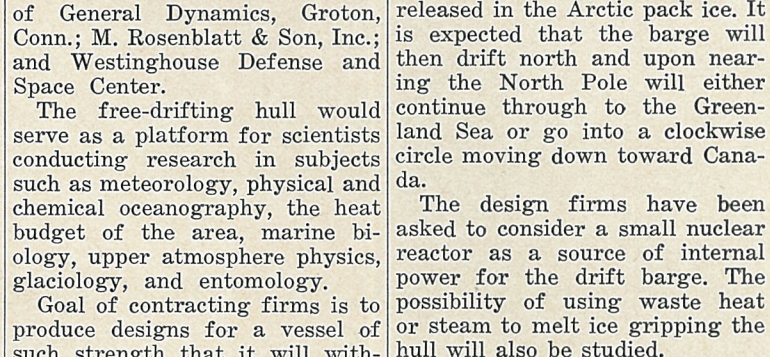
Air Force and Navy F-111s had logged nearly 1,303 hours aloft on 798 flights through July. Supersonic speed was reached on 290 of the flights.

F-111As, the Air Force version, had made 699 of the total flights, logging over 1,170 hours in the air; Navy F-111Bs had logged nearly 134 hours on 99 flights.

Category I and II testing of the variable-wing fighter continued to "progress satisfactorily" at Fort Worth division, Edwards AFB, Eglin AFB, and Grumman's New York facility, where the F-111B test versions are checked.

Latest F-111A off the assembly line at Fort Worth is TAC No. 15, which is being prepared for first-flight.

Nos. 16 and 17 are in final assembly, while No. 19 has been fuselage-matched.



SEND OFF—Mrs. Hubert H. Humphrey christens Polaris submarine Will Rogers. Watching, left to right, are Vice Adm. Vernon L. Lowrance, Commander, Submarine Force, U. S. Atlantic Fleet; J. William Jones Jr., president of Electric Boat, and Roger Lewis, president of General Dynamics.

EB Will Help Design 'Island' For Floating Arctic Research

Conceptual design contracts for a unique man-made floating research island, to carry scientists into the ice-laden waters of the Arctic Basin have been announced by the National Science Foundation.

Contracts, to be completed within four to six months, were awarded to Electric Boat division of General Dynamics, Groton, Conn.; M. Rosenblatt & Son, Inc.; and Westinghouse Defense and Space Center.

The free-drifting hull would serve as a platform for scientists conducting research in subjects such as meteorology, physical and chemical oceanography, the heat budget of the area, marine biology, upper atmosphere physics, glaciology, and entomology.

Goal of contracting firms is to produce designs for a vessel of such strength that it will withstand the terrific stresses and pressure of drifting pack ice and of such shape that it will divert the destructive forces of the ice to avoid their full power.

The platform would have living and working space for about 45 scientists and crew and would carry food and fuel for several years. Its facilities would include scientific laboratories, shops, deep sea winches, hospital, a helicopter pad, and a hangar for a small fixed-wing aircraft.

As presently planned the Arctic drift barge will be towed through the Bering Straits and released in the Arctic pack ice. It is expected that the barge will then drift north and upon nearing the North Pole will either continue through to the Greenland Sea or go into a clockwise circle moving down toward Canada.

The design firms have been asked to consider a small nuclear reactor as a source of internal power for the drift barge. The possibility of using waste heat or steam to melt ice gripping the hull will also be studied.

Electronics Earns Additional Order

A $3.5 million additional order for AUTODIN digital subscriber terminal equipment for use in the military digital worldwide network has been received by Electronics division.

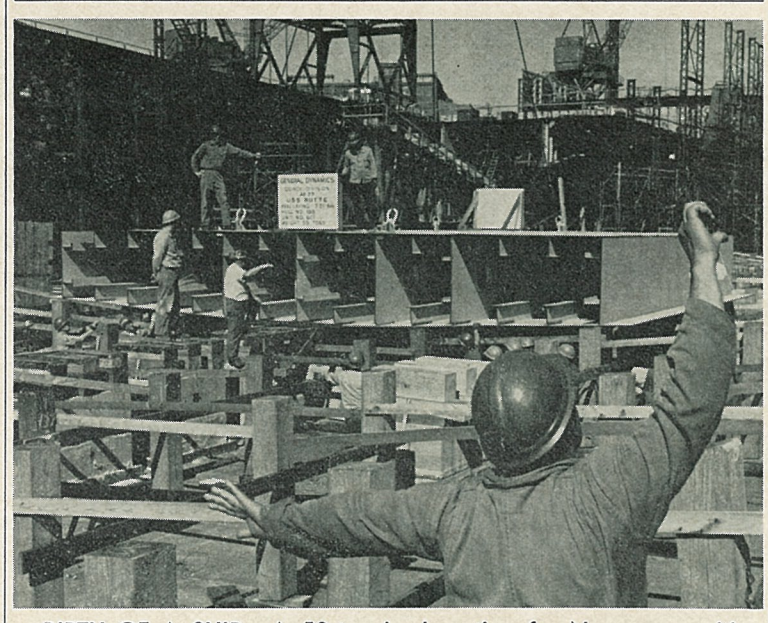
The new order was placed by the U. S. Army Electronics Command and is in addition to the $44.9 million received by the division in June, 1965.

Australia Exhibit To Include Redeye

Redeye, world's smallest guided missile system, will be on display at the Army Fire Power Exhibition in Canberra, Australia, Aug. 26.

The display, which includes a Redeye launcher and missile as well as systems application photographs, will also appear at an Australian Army staff weapons review in Canberra Aug. 14-18.

The Redeye shoulder-fired missile system is in production at Pomona division for the U. S. Army and Marine Corps.



BIRTH OF A SHIP—A 50-ton keel section for Navy ammunition ship USS Butte was laid last month at Quincy, Mass., division, marking fourth new ship started this year at shipyard. Butte's sister ship, USS Kilauea, was started March 10.

CADET TRAINING OFFERED YOUTHS

Children of General Dynamics employes, 13 to 18 years old, with an interest in aerospace education have been invited to join San Diego County Cadet Squadron 99 of the Civil Air Patrol.

The squadron meets at 7 p.m. Tuesdays in a church at 7045 Forum St. on Kearny Mesa. William L. Starbuck of Convair Dept. 460-0 is squadron commander, Valdemars Graudums of Dept. 566-3 is executive officer and Donald L. McCrary of Dept. 566-3 is military education officer.

Graudums said the curriculum acquaints cadets with educational requirements and opportunities in some of the more than 200 skills required in today's aerospace industry. Cadets also receive basic military and physical fitness training. For further information, phone Graudums at KM ext. 2144.

Convair Daughter Wins Scholarships

Marija Sekulovich, 17, a Helix High School graduate and daughter of Vojislav Sekulovich, a senior calibration technician in Convair Dept. 142-1, has been awarded three scholarships and four other awards.

Marija will receive a $500 University of California at San Diego Alumni scholarship, a $226 California State Scholarship Commission award and a $500 scholarship and $300 National Defense Education Act loan from the University of California at Riverside.

She also has received a Bank of America Achievement Awards certificate, an Elks Lodge No. 1812 award certificate, a first-prize $500 bond for winning a United Nations essay contest and a 22nd District American Legion Auxiliary award for having won first place in a "Freedom—Past, Present and Future" essay competition.

Williams Elected AIAA Section Head

Robert M. Williams, manager of systems engineering and predesign for Convair division, Dept. 581-1, has been elected chairman of the San Diego Section of the American Institute of Aeronautics and Astronautics.

David Jones, manned space vehicles program manager for Dept. 581-6, was elected secretary and Thomas Leech, senior guidance analysis engineer in Dept. 966-2, has been appointed publicity chairman.

The section's first event of the new year, a moonlight cruise dance aboard the S.S. Marietta, will be held Saturday (Aug. 13).

Homeless Children Appeal Sounded

A call is out for families to open their homes to children in the San Diego area who are temporarily homeless.

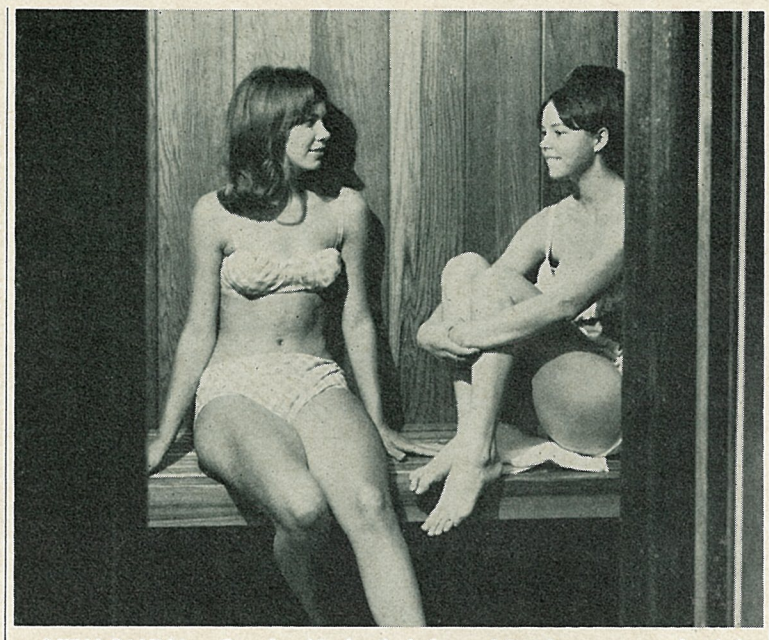
A serious shortage of foster homes exists, according to the County's Department of Public Welfare. Children of all ages and races are urgently in need of homes. Any General Dynamics family with room for another child is asked to call 234-8871, ext. 245, for information about the Foster Care program.

VEGAS, TAHOE TRIP PROPOSED

A CRA-sponsored group trip to Lake Tahoe or Las Vegas is planned for October. Definite choice of vacation spot will depend upon wishes of the majority interested. Call CRA Clubhouse, ext. 1111, Kearny Mesa, to list preference.

WEST GERMAN OFFICIAL TOURS CONVAIR PLANT

Dr. Hans Pflaumer, chief of the political division of Christliche Soziale Union of West Germany, toured Convair division last Thursday (Aug. 4) while visiting the United States as guest of the State Department.



NEW SAUNA—Sondra Lindroth, left, and Pat Lamoureux, both instructors at CRA Health Club, try out new redwood sauna for women.

New Redwood Sauna in Operation For Women at CRA Health Club

A new redwood sauna has been opened for women employes and dependents at the CRA Health Club in the CRA Clubhouse, Kearny Mesa.

The sauna, electrically heated and maintained at 165 degrees, is located in the women's dressing room and is open from 9:30 a.m. to 10 p.m. daily.

The 12-foot-long by 6-foot 4-inch wide and 7-foot-high sauna was constructed by Jerry Starkey, CRA Missile Park manager.

Pat Lamoureux, a club instructor, said the dry heat enables women using the sauna to take off a pound in 10 minutes. "It's especially good for those whose system retains an excessive amount of liquids," she said.

The original tile sauna is now open for men only from 11:30 a.m. to 10 p.m. It is maintained at about 180 degrees.

Annual membership in the club is $18 for individuals and $27 for families. Six-month trial memberships are $12, and $18 respectively.

Baby sitting is provided Tuesday and Thursday mornings at 50 cents per hour for up to two children per family.

Con-Trib Donations Total Over $15,000

Convair Employes' Con-Trib Club Committee last month allocated more than $15,000 to community service organizations in the San Diego and Vandenberg AFB areas.

Junior Achievement of San Diego, Inc., received a pledge of $10,000. One third is being made immediately and the remainder in equal installments in 1967 and 1968.

The San Diego Chapter of the Cystic Fibrosis Foundation was granted $1,000. The City Rescue Mission was given $1,500, the City of Hope $750 and the Travelers' Aid Society $500.

Christian Service Brigade was granted $500 and an additional $300 was allocated to the San Diego Juvenile Protective Committee.

The Santa Lucia Area Council of the Boy Scouts was granted $200 at the request of Vandenberg AFB employes. San Diego Urban League received $383.20.

Convair Man is Exec For Reserve Unit

Cdr. J. G. Helleis, USNR, of Convair Dept. 984-4 assumed duties as executive officer of Naval Reserve Unit, WEPTU-771, last month at the U.S. Naval Reserve Training Center, San Diego.

Seven other General Dynamics men are members of the Naval Air Systems Command reserve unit: F. G. Brickson, Dept. 544-4; R. F. Bausback, Dept. 951-4; F. A. Seaborg, Dept. 199-0; R. J. Reich, Dept. 584-1; N. B. Elsner of General Atomic; L. F. Bell of Electronics-SD; and R. W. Smit of Stromberg-Carlson.

GD men interested in joining the unit may contact Brickson, ext. 1028 LF, or home phone, 295-7030.

Sept. 23-25 Selected For Big Bear Jaunt

CRA Ice Skating Club has set Sept. 23-25 for its ninth annual "Autumn Weekend at Big Bear Lake" for all General Dynamics people.

Reservations will be limited to the first 100 who sign before the Sept. 16 deadline.

Reservations may be made through CRA Clubhouse, ext. 1111, Kearny Mesa, or employe services, Bldg. 16, Lindbergh Field plant, ext. 430.

For information call Commissioner Bud Davies, ext. 2751 KM, or Joan Kosen, home phone, 274-5227.

Convair Mgt. Club To Sponsor Keglers

Convair Management Club will sponsor three bowling leagues for members only at Parkway Bowl and Clairemont Bowl on Monday and Tuesday nights for the winter season.

Two leagues, one a men's 810 scratch on Mondays and the other, a mixed foursome on Tuesdays, will roll at Parkway Bowl. A men's 810 scratch is scheduled on Mondays at Clairemont Bowl.

Club bowlers intending to join any of the club leagues are urged to attend meetings next week—Aug. 15 at Parkway and Clairemont and Aug. 16 at Parkway, all at 7 p.m.

College Prep Grid Tickets on Sale

Tickets for the 18th annual College Prep All-Star Football Classic at 8 p.m. Aug. 24 in Balboa Stadium are now available for General Dynamics families.

Reserved seats are $3 and general admission $1.50. Tickets are available at Convair, Stromberg-Carlson and Electronics-SD employe services outlets, CRA Clubhouse and the Bldg. 51 engineering mailroom at LF.

Adventurers Head For Navajo Land

Convair Adventurers head into Navajo country this month on a "tag-along" car camp excursion from Aug. 21 through 27.

R. A. Madden, instructor at Cal-Western, will lead, assisted by Convair's Joe Quijada. For further information contact Quijada, KM ext. 2746, or home phone 284-0883.

FLYERS PLANNING SOLVANG TRIP

A fly-in to Solvang, Danish community north of Santa Barbara, is on the schedule of Bonair Flyers, CRA flying group, for Saturday, Aug. 20. So far, 21 people and five planes have signed for the all-day jaunt. Call Red Taylor, club vice president, ext. 2056, KM.

Registration Opening For Winter Keg Loops

Registration is open now for the CRA winter bowling season, due to get under way by mid-September.

There's a place for every bowler — beginner, average, or expert, Co-commissioners Forest Erwin Mike Brooks, and Jim Hayman emphasize as they urge all plant keglers, and members of their families, to turn out.

Names and phone numbers may be left at plant employe services outlets or the CRA Clubhouse by Sept. 3 to reserve a spot on a league team.

Winter league schedule is:

Monday — Parkway Bowl, El Cajon. Men's 810 Scratch.

Monday — Clairemont Bowl. Men's 810 Scratch.

Tuesday — Parkway Bowl. Mixed Foursome.

Tuesday — Clairemont Bowl. Mixed Foursome.

Wednesday — La Mesa Bowl. Mixed Foursome.

Thursday — Frontier Lanes. GD/E Mixed. Scout League Mixed (fivesome).

Thursday — Victory Lanes. Engineering Foursome Mixed.

Friday — Pacific Recreation. Men's 850 Scratch. Women's Handicap.

Organization meeting for all leagues will be next week, starting Monday, Aug. 15, at the bowling alleys on the respective nights. Meeting time is 7 p.m. each night.

For information call Erwin, ext. 2884, Brooks, ext. 2850, both Kearny Mesa; or Hayman, ext. 1360, Lindbergh Field.

Football Fans Get Discount of Dollar

General Dynamics football fans can get their tickets to the two coming pre-season Chargers' games at discount price of $2.50, a reduction of $1, through CRA.

Tomorrow (Thursday) is last day to purchase tickets to this Saturday's (Aug. 13) game with Oakland.

Tickets to the Aug. 27 night game with Boston go on sale next Wednesday (Aug. 17). Deadline will be Aug. 25.

Tickets are sold at employe services outlets at Convair, Electronics, Stromberg-Carlson, CRA Clubhouse, and the engineering mailroom in Bldg. 51, Lindbergh Field plant.

Coineers Meeting Draws Big Crowd

A crowd of 110 gathered for the July meeting of the Convair Coineers. Trophy of the month went to Commissioner Vince Bacon for his display of Jefferson nickels.

Next meeting will be Aug. 17, 7:30 p.m., Convair cafeteria. Theme of the month is nature. A $20 gold piece and silver dollars will be given away in drawings.

Bridge Club to Play At Officers Club

Bridge club members at Convair will gather for a dinner and card party Saturday, Aug. 13, at the MCRD Officers' Club.

Social hour starts at 5 p.m. Mitzi Rustad is in charge of reservations.

TRAVELERS PLAN PINE CREST TRIP

CRA Travelers will drive to Pine Crest, CRA mountain resort, for the weekend of Aug. 20-21. Call Commissioner Virg Marshall, ext. 3541 KM.

Mgt. Club Golfers Tune For Tourney

A few days remain for Management Club golfers to sign for the NMA Western Division golf tourney, sponsored by San Diego Area Council Aug. 27-28 at Cottonwood and Torrey Pines courses.

Deadline for entries is Aug. 15.

Fee for members is $13; guests, $15. Two-passenger carts, optional, are $7 a day, and charge for the barbecue Aug. 28, also optional, is $3.50 per person. Greens fee, cart and barbecue fees must accompany entry blank.

Call Jack Nichols, ext. 1614 Kearny Mesa; or Terry Kell, ext. 605, Lindbergh Field.

CRA Calendar

(For information on CRA activities call CRA Headquarters, Kearny Mesa, ext. 1111. Deadline for copy for the next issue of GD/NEWS is Aug. 17. Call ext. 3322 KM or 1071 LF.)

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ADVENTURERS — Excursion to northern Arizona Aug. 21-27. No August meeting.

BADMINTON — Play Mondays, 7-10 p.m., Federal Bldg., Balboa Park.

BICYCLE CLUB — Meeting Aug. 22, 7:30 p.m., CRA Clubhouse.

BONAIR FLYERS — Fly-in to Solvang Aug. 20. Call Red Taylor, ext. 2056 KM. Register for ground school courses through ext. 1111 KM.

BOWLING — Sign for winter leagues by Sept. 3 through employe services or CRA Clubhouse.

BRIDGE — Dinner party Aug. 13, MCRD Officers' Club.

CAMERA CLUB — Meeting Aug. 21, 7:30 p.m., Photo Arts Bldg., Balboa Park.

CERAMICS — Meetings Tuesdays and Thursdays, 7-10 p.m., CRA Clubhouse.

CHESS — Play Wednesdays, 7:30 p.m., CRA Clubhouse.

COINEERS — Meeting Aug. 17, 7:30 p.m. Convair cafeteria, Pacific Hwy.

DELTA DIVERS — Annual beach party Aug. 20 at La Jolla Shores.

FENCING — Workouts and instruction Fridays, 7:30-10:30 p.m., YWCA, 10th & C Sts.

FISHING CLUB — Steak fry Aug. 16 at Pecan Park, 6:30 p.m. Business meeting at 7:30 p.m.

GOLF — CRA tourney Aug. 13-14, Bonita Country Club.

ICE SKATING — Registration open for annual Autumn Weekend at Big Bear, Sept. 23-25. Call Bud Davies, ext. 2751, KM. GD skate nights Thursdays, 6:15-7:45 p.m., Mission Valley Ice Arena.

PISTOL CLUB — Club shoot 9:15 a.m. Aug. 14, SD Police Range, Federal Blvd. and Home Ave.

RADIO CLUB — Meeting Aug. 18, 7:30 p.m., Harbor Drive club headquarters.

RAILROAD CLUB — Work sessions Tuesdays, 5-7 p.m. and Saturday mornings at CRA Missile Park.

RIDING CLUB — Meeting tonight (Aug. 10), 7:30 p.m., CRA Clubhouse. Fun show Aug. 21, CRA ring.

SCULPTURE — Workshop sessions Mondays, 7:30-10:30 p.m., CRA Clubhouse.

SKI CLUB — Water skiing Sunday mornings, 8 a.m. to noon, off Crown Point; Wednesdays after work off Santa Clara Point. Call Joe Harris, 284-0278.

SPORTS CAR CLUB — Meeting tonight (Aug. 10), 7:30 p.m. Convair executive dining room, Pacific Hwy.

TOASTMASTERS — Convair Toastmasters No. 3745 meet Wednesdays, 4:15 p.m.; Dynamics Toastmasters No. 457 meet Thursdays, 5:15 p.m., CRA Clubhouse.

TOASTMISTRESS CLUB— Serra Mesa Club meets first and third Mondays, 7:30 p.m., CRA Clubhouse.

TRAILERS — CRA Travelers outing to Pine Crest Aug. 20-21.

WIVES — Laguna Art Festival group trip Aug. 13. Call Georgia Hatfield, 273-2757.



QUALITY KICK-OFF—Jack L. Bowers, Convair general manager, late last month inaugurated expanded Do Good Work program. At same time he handed out "Craftsmen of Month" awards to Jack M. Kline (top left) for Dept. 732 and Steve Barinka (top center) for Dept. 972. Top right, Bowers is shown with Col. James R. Ourand, Defense Contract Administration Services plant representative. Lower left: K. E. Newton, Convair manager at ETR, presents check for Employe Suggestion to Charles F. Jacobs, Complex 12 technician. Below, center: members of Dept. 979-3 at ETR receive fifth Craftsmanship award, fourth in a row. Lower right: L. L. Jella, chief of reliability control for Convair at WTR, presents perpetual Do Good Work award to T. A. Bianchi of MAB 5 who accepted on behalf of employes.

Ten Receive Commendations In Reliability Control Dept.

Commendation certificates for second quarter cost reduction and value control savings have been presented by L. I. Medlock, reliability control director, to 10 reliability control department supervisory personnel.

William Olson of Dept. 143-2 received certificates for three projects with a combined savings of $54,750. This brought to 14 the number of similar certificates he has received for savings totaling $239,893 since the program began in November, 1963.

One of Olson's new cost reduction proposals resulted in elimination of unnecessary duplication of functional testing inspection of components manufactured for the division by Hydraulic Research and Cadillac Gage companies. Functional inspection is now done by receiving inspection in San Diego and division source inspectors formerly assigned to the companies have been reassigned for a savings of $30,750.

Another implemented a revised procedure that eliminates need for two copies of each receiving report utilized by receiving inspection at a savings of $5,050.

Olson's third certificate was for a value control proposal saving $19,093 through eliminating need for purchase of a "test bar" with each order of purchased castings. A sample casting now is used for required machining and chemical and physical tests.

Others receiving certificates, their department numbers and audited savings were:

P. M. Benner, 143-2, $54,893; V. L. Brierley, 142-0, $23,371; A. J. Woodington, 142-0, $18,093; E. M. Duke Jr., 141-2, $11,668; W. G. Lux, 141-0, $10,675; D. R. Miller, 141-0, $8,543; G. M. Pearce, 146-3, $6,819; Lester Dassoff, 146-3, $6,564, and W. T. Hollar, 141-2, $5,128.

Eric G. Callard, reliability control cost reduction/value control program administrator, said the second quarter savings brought the department's six month total to $683,000, compared with a goal of $378,000.

All supervisory personnel in the department were invited to attend the meeting at which the certificates were presented and were urged by Medlock to continually try to find new ways to reduce cost.

"If you look at something long enough and hard enough, you can improve it," he said. "Let's find a way to do it."

Firm Improvement Noted For Division

(Continued from Page 1)

Work" program is evaluated and progress reported bimonthly by quality assurance department personnel under supervision of D. R. Miller.

Estimated cost avoidance attributed to the program for the first six months this year totaled $224,047 for January, $303,124 for February, $371,124 for March, $355,540 for April, $333,154 for May and $409,874 for June.



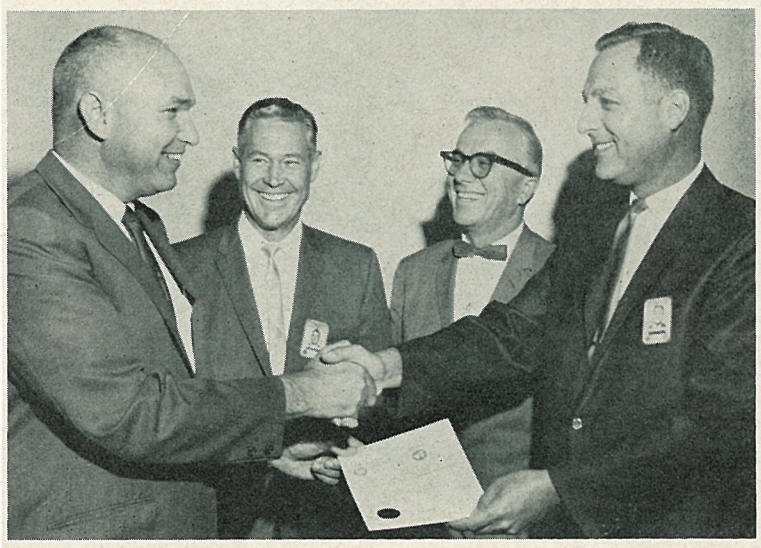
TRIPLE SAVER—William Olson, right, supervisor of Dept. 143-2, receives three commendation certificates from L. I. Medlock, reliability control director, as D. R. Archibald, quality control manager, looks on. Olson has received 14 such certificates since cost reduction/value control certificate awards program began.

Typewriters Added For Salvage Sale

Fluorescent light fixtures and typewriters will be added to the usual stock of metal, lumber, furniture at the Aug. 20 employe salvage sale at the Lindbergh Field yard.

Two-tube fluorescent light fixtures will be sold for $4.50 each and Remington manual typewriters for $50 each. These items are, for the most part, in good condition, R. H. Lange, supervisor of material sales, said. Everything is sold on an "as is" basis and all sales are final. No refunds or exchanges are permitted after the sale is closed.

Sales hours are from 8 a.m. until noon.



COST COMMENDATION—Miles Stepich of production control, right, presents commendation certificate to J. Robert King for $254,046 cost reduction project. Looking on are F. J. Parker, chief of shop order and work-in-process stores, and W. J. Dawsey, methods engineer who conducted work simplification study.

Big Cost Saving Accomplished In Modification and Rework

J. Robert King, assistant supervisor of electronics shop order, Dept. 832-2, has received a commendation certificate for a $254,046 cost reduction project involving planning, shop orders and dispatching relating to engineering modification and rework of electronic components.

The cost reduction resulted from King and F. J. Parker, chief of shop orders and work-in-process stores, Dept. 830-0, arranging for a detailed work simplification study to be conducted by W. J. Dawsey, a methods engineer in Dept. 405-0.

Ten other problem areas affecting both "upstream" and "downstream" departments also were identified in the study and a series of meetings held with supervisory personnel from each and problems eliminated.

A manual of forms and flow charts prepared by Dawsey also indicated some duplication of forms and tasks within the electronics shop order group.

Additional cost reduction projects also will be forthcoming as a result of the study.

BSD VICE COMMANDER BRIEFED ON DIVISION

Col. Ray Soper, vice commander of the Air Force Ballistic Systems Division, was at Convair Aug. 1 for briefings on the division's organization, capabilities, and advanced programs.

Expanded 'Good Work' Program Given Support of Customer

"I know I can speak for all of your government customers in expressing appreciation for the voluntary effort you are taking to expand your Do Good Work program," Col. James R. Ourand, Defense Contract Administration Services plant representative told Convair supervisors late last month.

"Mutual benefits of this type of program to both the government and contractor are well recognized," he said.

Ourand said there has been much impressive past evidence dating back to the days of the Project Mercury flights that Convair's Do Good Work program is paying off in quality workmanship and overall reduction in costs.

"With the enthusiastic, competitive and hard-hitting leadership I know you're going to give this effort, I have no doubt that your expanded program will continue its record of impressive and substantial benefit to the defense effort," he added.

Ourand described the rapidly expanding Department of Defense Zero Defects program applicable to all personnel at every organizational level for both "in house" and contractor activities involved in defense.

"Convair with its pioneering effort in this type of motivational program has played a very important role in the development of the Department of Defense Zero Defects program," he said.

Ourand introduced a DOD film, "Zero Defects — Right the First Time," that vividly described the need for error avoidance in all types of work ranging from clerical and engineering design tasks to space hardware production and parachute packing.

A sergeant on the battlefield gave this personal observation:

"The country is spending millions on defense but the way I look at it every cent is being wasted if my ammo isn't delivered on time, if my gun won't fire when I'm being shot at or if my radio quits just when I need it most. One loose solder joint in my radio could make the difference to me and my whole squad. Every bit of equipment has to be right the first time."

The film narrator pointed out there are times when we expect perfection, such as when we rely on our doctor to use correct medicine.

"When we feel something is important, we can do it error free," he said.

Lack of knowledge, lack of proper equipment and lack of proper attitude were cited as major reasons mistakes are made.

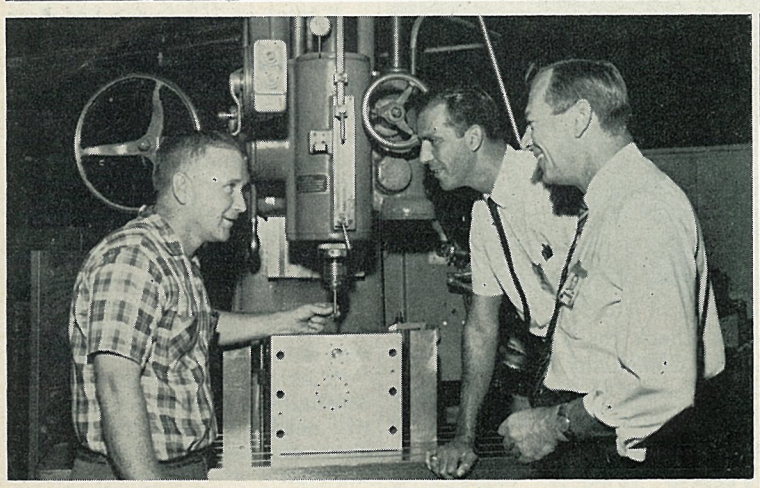
"Every employe of a defense contractor, subcontractor or supplier is joined in the all-important effort of protecting our nation and supporting the men in our combat forces," the film pointed out. "For each of us, whatever our job, the goal is—the goal must be—zero defects. It's up to each of us."

The film is to be shown later to Convair division employes at the Eastern and Western Test Ranges.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 19, No. 17 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, August 24, 1966



NUMBER ONE—Joseph V. Hartman, left, first employe reporting for work as a result of Convair division's employe referral program, operates jig bore machine in Dept. 756-0. Talking with him are Ray Mendoza, employment supervisor, center, and R. G. Carman, his supervisor.

First Referral Hired Reports For Work

When Joseph V. Hartman, first employe hired by Convair under the division's new employe referral program, reported for work early this month as an instrumentation machinist in engineering test support (Dept. 756-0), it was just "returning home."

Hartman had been with the division for 10 years before resigning several months ago to accept a position with another firm.

So he was no stranger to his supervisor, R. G. Carman, who had recommended that he be contacted.

At the suggestion of Frank Armstrong, leadman, Carman filled out a referral form clipped from GD/NEWS and Ray Mendoza of employment followed through by contacting Hartman and arranging his rehire.

"Hartman is an excellent journeyman machinist and we are glad to have him back," Carman said.

(Continued on Page 2)

Dept. 024 Earns 'Do Good Work' Honors in July

Dept. 024 craftsmen working on the Convair 600 program at Lindbergh Field won Convair "Craftsmen of the Month" honors for the first time in July by cutting defects by almost two thirds for a 119.5 quality index.

W. E. Magnuson, chairman of the "Do Good Work" program, said the department improved performance by lowering its defects from 1.65 per 100 manhours worked for the past six months to .57 for the past three months.

The department has been entered in the monthly Craftsmanship competition since January. Its defects per 100 manhours was a low .29 for July.

Each member of the department will receive a letter of commendation from Jack L. Bowers, Convair division general manager.

"Craftsmen of the Month" honors for the Eastern Test Range for July went for the fifth consecutive month to Operations Support with a 130 quality index and a perfect no defect record.

Western Test Range personnel are changing from a quality index to a goal setting method of performance evaluation and were not entered in the July competition.

$12 Million Okayed For Space Programs

Convair division this month has received more than $12 million in incremental funding under six existing space launch vehicle program contracts.

Increments include $5,723,878 for the standardized SLV program; $1,400,000 for design, engineering and fabrication of booster vehicles for the Centaur program; $1,598,750 for fabrication of SLV-3 follow-on vehicles; $1,261,000 for logistics support and spare parts inventory management services, and $2,330,000 under two contracts for launch support services at the Western Test Range.

Mgt. Club Families Will Watch Padres

"Baseball Night" for Convair Management Club families is scheduled for Thursday, Sept. 1, at Westgate Park to watch the Padres play the Phoenix Giants.

Families will join in a barbecue at 6 p.m. with dinner and drawings for both adults and children to be over by game time at 8 o'clock.

Material and production control, sponsors of the event, list prizes galore—$1,600 worth, to be given away: Las Vegas vacations for two, 1966 season tickets to the Chargers, 1967 season tickets to the Padres, tickets to the Gulls' ice hockey league games, besides cameras, radios, etc.

Prizes in the children's drawing include autographed baseballs, footballs and pictures.

Total charge for dinner and game is $2.50, adults; $1.50, children under 13.

Proceeds from the raffle will go to the Management Club scholarship fund.

Atlas-Launched Lunar Orbiter Is Scouting Surface of Moon

America's first Lunar Orbiter, lifted into space Aug. 10 from Complex 13 at Cape Kennedy by Convair's Atlas SLV-3 No. 5801 and carried into lunar trajectory by an Agena second stage vehicle, is scouting vast areas of the lunar surface to aid in selection of Apollo astronaut landing sites.

The Atlas-Agena flight placed the Orbiter on such an accurate trajectory that only one midcourse correction was required to place it into orbit ranging from 100 to 1,000 miles above the moon's surface.

After gravitational and other calibrations were made and the Lunar Orbiter's camera systems were checked out, the elliptical orbit was lowered last week to about 28 to 100 miles above the surface.

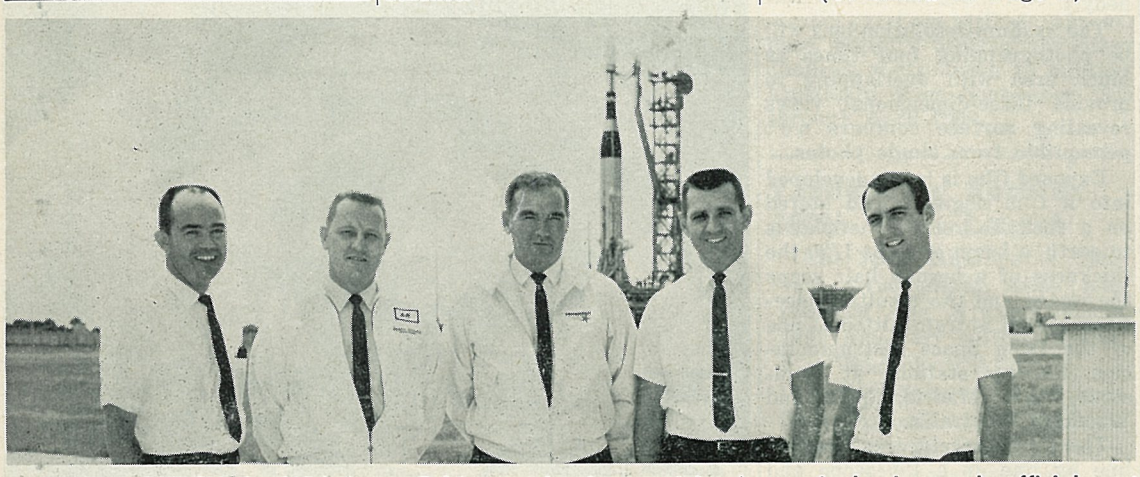
SLV-3 No. 5801 was the first SLV-3 launched from Complex 13 and the booster had been at the Cape since February for use in checkout of the launch complex configuration. The flight marked the 301st Atlas launch, including the 101st launch in a U. S. space program.

Jack S. Berggren, Atlas SLV-3 manager, and Jim Von der Wische, Convair program manager for NASA SLV-3 programs, were at the Cape for the launch.

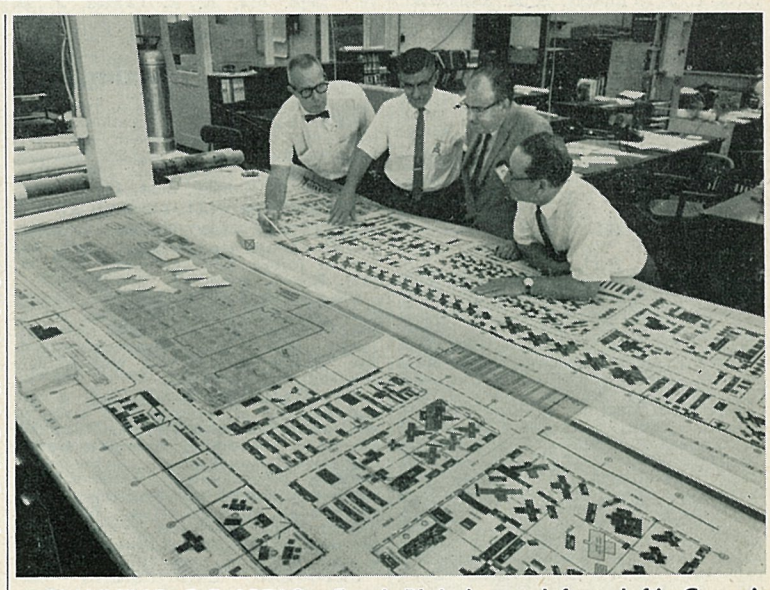
William G. Phillipp was launch conductor with G. G. Baxter and W. E. Apfel as assistants.

The Atlas separated at 85 miles altitude and the Agena engines accelerated the Agena-Orbiter into a 100-mile-high parking orbit. After coasting to a translunar

(Continued on Page 2)



ORBITER OFFICIALS—With Lunar Orbiter payload atop Atlas-Agena in background, officials get together to discuss launch at Cape Kennedy's Complex 13. From left are Don Barrs, Lunar Orbiter test conductor for Boeing; W. G. Phillipp, Convair's Complex 13 site manager and test conductor; Don Jordon, Lockheed Agena test conductor; E. R. Searle, NASA launch vehicle director, and J. Weir, NASA spacecraft director. Launch was first for an Atlas SLV-3 off Complex 13.



PLANNING C-5 AREAS—Frank Blair (second from left), Convair Lindbergh Field factory manager, and E. D. Robinson, who will be in charge of C-5 assembly, check over layouts for C-5 space plans with W. L. Timm (left) and R. D. Marks (right) of facilities engineering.

Production Areas Prepared For C-5

Plans and layouts for rearrangement of production areas at Convair's Lindbergh Field plant are nearing completion in preparation for the C-5 empennage production program.

Realignments specifically for the C-5 affect many existing production areas in the plant, Bldgs. 1, 2, and 5, as well as parts of other plant facilities in Bldgs. 4, 10, 13, 75, 78 at LF.

Space plans by facilities engineers working closely with all involved departments are laid out to expedite flow of C-5 parts and work through the plant to the Bldg. 2 assembly area, said C. F. Blair, Lindbergh Field operations factory manager.

"Ground-breaking" is set for October for a Numerical Control Profile Machine Tool Center in the high area of Bldg. 5. Early next year experimental factory activities will be moved into Bldg. 4 in the area now occupied by military kit staging. Military kits will be moved to the mezzanine of Bldg. 4.

First of eight new numerical control profile machines now on order is expected to be in-plant for installation in November, according to the present schedule.

Existing machine shops in both Bldgs. 1 and 5 will be arranged to increase work accumulation areas and support activities for the numerical control machines and new conventional mills for the C-5 program.

Space will be cleared in the north end of Bldg. 1 for two large numerical control plank

(Continued on Page 2)



FIRST CUSTOMER—Convair Service Center painters and layout men, L. W. Schmitz and C. W. Waits, strip masking off Cubic Corp. twin-engine Navion as Supervisor H. B. McIntosh (far right) watches. Plane was first to go into paint facility for fast paint job.

Service Center Offers To Paint Small Planes

Convair Service Center is offering a quick turn-around paint service on a competitive price basis to operators of private planes.

The Service Center is opening its paint facility to single and twin-engine craft to keep the paint shop operating to capacity.

E. J. Huntsman, Service Center manager, stated, "There are hundreds of light aircraft in Southern California needing quick, quality paint jobs at a reasonable price. We have the men, equipment, and experience to take care of a great many small planes on an in-and-out basis without disrupting our normal routine."

Convair Service Center has painted F-102s under contract with the Air Force and is now repainting Convair 600/640 transports after conversion to turboprop configuration.

Huntsman credits D. E. Evanson, Service Center industrial engineer and commercial pilot in his own right, and H. B. McIntosh, paint department supervisor, with working out the details to make the new service feasible. Quick, simple service is the keynote. Planes are landed at the north flight gate, checked in just as at an auto repair garage with a service check list, defueled, run into the paint shop, and delivered back to the runway for pickup in two or three days.

First private plane to go in for a paint job was a twin-engine Navion owned by Cubic Corp. The craft was transformed into like-new condition with a shining white and international orange

(Continued on Page 2)

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between August 15 and August 31.

Thirty-five-year: Dept. 149-4, F. W. Bornemann.

Thirty-year: Dept. 031-0, D. Whorton; Dept. 143-1, B. A. Buffat; Dept. 250-3, R. A. Schultz.

Twenty-five-year: Dept. 041-0, L. V. Boles; Dept. 059-3, R. H. Freeley; Dept. 101-4, C. L. O'Rourke, S. M. Sosnowski; Dept. 143-5, H. R. Franson; Dept. 300-0, E. J. Huntsman; Dept. 451-0, F. W. Matern; Dept. 460-0, C. N. James, J. B. Johnson; Dept. 733-0, J. A. Villian; Dept. 834-1, J. C. Abels Jr.; Dept. 835-2, A. W. Bailey; Dept. 964-2, R. B. Miller; Dept. 973-0, R. Franklin; Dept. 973-1, E. H. Johnson; Dept. 976-0, R. L. Hines; Dept. 985-1, C. E. Horton.

Twenty-year: Dept. 041-0, A. Castenada; Dept. 123-0, E. V. Wayman; Dept. 127-0, G. P. Williams; Dept. 130-1, E. A. Gaskins; Dept. 130-5, K. A. Sears; Dept. 191-0, M. G. Herman; Dept. 451-0, F. W. White; Dept. 509-1, E. G Gilger; Dept. 511-2, E. B. Ruttan; Dept. 520-1, S. Y. Johnson; Dept. 731-0, W. H. Hand; Dept. 962-3, E. A. Gaut Jr.; Dept. 985-1, C. H. Towner.

Fifteen-year: Dept. 001-0, R. E. Scott; Dept. 015-0, R. L. Harr; Dept. 041-0, J. W. Ward; Dept. 059-3, V. H. Dressler; Dept. 145-1, G. R. Spitzer; Dept. 170-1, R. W. Warwick; Dept. 250-0, L. N. Peterson; Dept. 250-2, H. A. Buehler, R. B. Johnson; Dept. 300-2, W. E. Miller; Dept. 420-4, C. H. Reeh; Dept. 508-0, B. D. Just; Dept. 511-1, H. A. Peterson, R. P. Poston; Dept. 521-6, N. R. Arellano; Dept. 524-2, C. L. Harger; Dept. 553-1, A. H. Washburn; Dept. 553-2, G. C. Hom; Dept. 578-3, J. R. Hilliard; Dept. 579-1, D. H. Love; Dept. 715-0, A. E. Bates; Dept. 819-0, G. L. Sandoval; Dept. 955-0, H. A. Reno; Dept. 962-4, H. J. Lomax Jr.; Dept. 967-3, J. P. Liston; Dept. 969-2, C. B. Swanson; Dept. 978-3, R. S. Barlow.

Ten-year: Dept. 001-0, N. W. Brown; Dept. 019-0, S. Munoz; Dept. 055-0, M. E. Smith; Dept. 057-0, P. T. Machovec; Dept 103-0, J. M. Kramer; Dept. 111-0, C. P. Boody; Dept. 113-0, R. W. Emerson; Dept. 130-1, J. W. Gelinas, R. M. Lyons, C. A. Tabor; Dept. 131-5, R. E. Keller, C. S. Stevens; Dept. 141-3, R. E. Dubel; Dept. 142-1, C. W. Patterson; Dept. 191-0, J. D. Burns; Dept. 195-1, M. L. Grant; Dept. 401-4, B. T. Valentine; Dept. 452-0, D. W. Newton, W. L. Smith; Dept. 454-0, R. K. Arii, T. D. Schirtzinger

Dept. 511-1, C. F. Richards; Dept. 521-6, M. P. Traupel; Dept. 531-2, G. A. Dethier; Dept. 533-1, L. E. Thomas; Dept. 553-1, R. T. Moran; Dept. 574-1, T. Lazos, C. W. Weber Jr.; Dept. 572-4, H. R. Stone; Dept. 591-0, R. W. Livesay; Dept. 733-0, A. C. Weller; Dept. 780-1, C. M. Ferrara; Dept. 780-3, Z. A. Elgin; Dept. 832-3, E. T. Edwards, L. O. Scarbrough; Dept. 833-1, J. C. Brewer Jr.; Dept. 833-2, W. J. Gagne; Dept. 847-2, J. D. Barbieux.

Dept. 950-6, D. B. Sullivan; Dept. 950-7, R. Ramsower; Dept. 954-1, F. S. Graham; Dept. 954-2, W. P. Bochert; Dept. 958-4, R. H. Geary; Dept. 965-1, R. J. Moberly; Dept. 966-4, W. T. Su; Dept. 967-3, E. Rincon; Dept. 974-4, R. H. Poer, R. T. Rustad; Dept. 979-0, R. C. Lynch; Dept. 979-1, T. S. Hinshaw, N. F. Lewis; Dept. 979-2, J. J. Jensen, J. H. Sylvester Jr.; Dept. 979-3, E. J. McGee, R. T. Robbins; Dept. 985-1, A. M. Ferreira, K. B. Keller; Dept. 985-3, J. Hickey, J. H. Kern; Dept. 988-8, H. W. Riner.

STROMBERG-CARLSON

Twenty-five-year: Dept. 87-10, T. A. Markel.

ELECTRONICS

Twenty-year: Dept. 2260, E. C. Johnson; Dept. 69880, E. F. DeMers; Dept. 75490, H. G. Fisher.

Fifteen-year: Dept. 40730, E. L. Vetter; Dept. 40750, E. G. Frost; Dept. 66770, J. C. Kowalsky.

Ten-year: Dept. 17630, J. E. Dempsey; Dept. 40730, G. P. Sheehan; Dept. 40750, C. E. Brown, L. T. Hawks, H. D. Palmer; Dept. 64780, D. D. Olson; Dept. 68540, M. E. Sheskey; Dept. 66830, B. J. Tucker.

Invention Disclosures

CONVAIR

HERTZ—Julius, Dept. 572-1, and G. D. PEDDIE, Dept. 491-0. Elastomeric Radiation Shield. Mechanical Bonding Device.

KROPP—C. J., Dept. 572-1. Development of Weldable Fiber Reinforced Alloys.

LYNCH—R. A. and C. P. PLUMMER, Dept. 581-5. Propulsion for Variable Geometry Entry Vehicles.

MERZ—P. L., Dept. 572-1. Reclaiming High "Z" Radiation Shielding Fillers.

Births

CONVAIR

ASPERIN—Daughter, Gina Elaine, 5 lbs., 10 oz., born July 22 to Mr. and Mrs. Glenn E. Asperin, Dept. 733.

DIXON—Son, John Whistler II, 7 lbs., born Aug. 11 to Mr. and Mrs. John W. Dixon, Dept. 957-0.

Deaths

CONVAIR

CRUMRINE—Edward E., Dept. 001-0. Died Aug. 14 from injuries received in motorcycle accident. Survived by wife, Coralee, and infant son, Edward E.; parents, Mr. and Mrs. Larry Crumrine.

MILLIES—Harry C., Dept. 193-3. Died Aug. 9. Survived by sister.

SUTTON—Arnold P., Dept. 059-3. Died Aug. 11 after long illness. Survived by wife, Bertha; and three daughters, Jo-Ann, Shirley, and Betty Lou.

General Dynamics News

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Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

Awards

Employe Suggestion awards approved for the week ending Aug. 5.

Dept. 002, R. A. Davis; Dept. 015, S. S. Jenson; Dept. 059, C. S. Lunsford; Dept. 123, J. A. Vicari; Dept. 130, J. Singers; Dept. 142, I. L. LeDuc; Dept. 149, J. E. Campanella, M. J. Gerhardt; Dept. 572, F. J. Phillips; Dept. 715, V. G. Harding; Dept. 780, B. C. Anthony, M. E. Bush; Dept. 957, G. A. Rummel Jr.; Dept. 974, E. L. Carnes, J. D. Willingham; Dept. 979, K. C. White; Dept. 987, C. E. Weber.

In-Plant Training

ORIENTATION

NEW EMPLOYES—Educational services staff, Lindbergh Field, ext. 491. Bldg. 14 auditorium, Aug. 30, Sept. 13, 8 a.m. Kearny Mesa, ext. 1931, Bldg. 17, Room 1, Monday, Sept. 12, 8 a.m.

PROFESSIONAL/TECHNICAL

RELIABLE ELECTRICAL CONNECTIONS—Educational services staff. For further information and quota call ext. 1931, Kearny Mesa.

PRODUCT IMPROVEMENT—Kearny Mesa Manufacturing Conference Room, Bldg. 5, Dept. 731, Aug. 22-25 and Sept. 12-15, 4:30-5:30 p.m. Enrollment closed. For information call Will Weidenfeller, ext. 1931, Kearny Mesa.

PROGRAMMED SELF-STUDY—A limited number of programmed texts in accounting, computer language, English, shorthand, electronics, electricity, instrumentation, management, mathematics, machine programming, statistics, and value engineering are available in the educational services office, Bldg. 17, Kearny Mesa. These may be checked out for home study. Office hours are from 8 a.m. to 5 p.m., ext. 1931 KM.

CRYOGENIC ENGINEERING — Carl Leonhard, instructor. First class, Sept. 21, 5 p.m., Room 7, Bldg. 17. Prerequisite is a minimum of three years toward a BS degree, or five years applied engineering experience, or permission of the instructor. For reservations call ext. 1931 KM.

AFTER HOURS CLASSES
San Diego Junior College

REGISTRATION—Registration for City College fall courses at Convair facilities will be from 4 to 5 p.m., Aug. 25, 26, 29, and 30 in Room 1, Bldg. 17. For information call Dick Forrest, ext. 1931 KM.

SAN DIEGO STATE COLLEGE EXTENSION

FALL SEMESTER—Classes begin the week of Sept. 19 with registration on first class meeting night. All classes will be in Bldg. 17 Kearny Mesa. Courses are: fluid mechanics, Wednesdays, 5 to 7:30 p.m., Room 1; structural analysis I, Tuesdays, 5-7 p.m., Room 1; AISC manual design usage, Mondays, 5-7 p.m., Room 8. For information call Dick Forrest, ext. 1931 KM.

Personals

The family joins me in thanking our Convair friends for their thoughtful remembrance of George. We will always remember their kindness.

Lee Fagan.

* * *

I wish to express my sincere thanks to friends for the flowers, cards and many kindnesses received at the death of my stepfather.

Peggy Faulkner
Dept. 101.

* * *

We thank Dept. 143 and Convair Management Club for the beautiful flowers during our bereavement.

Mr. and Mrs. J. F. Baebler.

Lost & Found

A paper bag filled with child's clothing was found by Floyd Reed of Convair Dept. 015-0 at close of Management picnic Aug. 7 at Pecan Park. Owner may phone Reed at LF ext. 730 or his home, 444-0779.

Service Center to Paint Small Craft

(Continued from Page 1)

color scheme — also worked out by paint shop specialists. In Tuesday, out Thursday — was the time schedule for cleaning, stripping, masking, painting, and marking the plane.

Several small craft operators visited the plant to look over the new paint job before the plane was delivered to its owners.

Notices have been sent to aircraft owners in the area listing price quotes. Prices range from $500 for stripping, corrosion treatment, two-color paint job on a single-engine plane to around $1,000 for a complete three-color job on a twin-engine craft. Condition of the plane dictates the actual cost.

Six Convair Children To Appear in Show

Six children of Convair division employes will perform in the musical comedy "Seventeen" to be presented by San Diego Civic Arts for Youth at 8:30 p.m. Aug. 26 and 27 in Balboa Park Bowl.

They are (with fathers' initials and department numbers in parentheses): Bonnie Gabriel (M. F., 758-0), Katy Thurston (E. W., 130-3), Kathy Yates (G. B., 584-3), Celeste Wasilk (H. J., 591-0), and Robin and Susan Gillette (J. E., 579-1).

Tickets are on sale at Thearle Music Co. box office or by calling San Diego Recreation Dept.



S-C DONATION—C. V. Shannon, general manager of Stromberg-Carlson Data Products (center) hands check for $2,500, final installment on 1965-66 pledge to United Community Services, to W. E. Quirk, vice president and general manager of Pacific Telephone Co. and chairman of UCS Early Bird division. Approving is Joyce Beaver, secretary in Data Products engineering group.

Production Areas Prepared For C-5

(Continued from Page 1)

skin mills with support machines and service areas. Manufacturing research and development, now located in the Bldg. 1 area earmarked for the plank mills will be moved to Kearny Mesa plant this fall in a consolidation of all Convair manufacturing R&D activities.

Rivet manufacturing will be relocated and condensed to clear the balance of the space required.

Removal of 22,500 square feet of the Bldg. 1 northwest mezzanine will be necessary to provide the high bay area needed. An overhead crane system and added power facilities will be installed.

In support of plank skin milling, Bldgs. 10 and 13 will be used for polishing, barbering, and dye penetrant for plank skins. The plant engineering woodmill in Bldg. 13 and Davidson Bros. storage, employes' tool store, transportation offices, and maintenance storage in Bldg. 10 will be relocated. The tool and lumber yard storage between Bldgs. 1 and 13 will be moved to provide space for raw material storage and access to the buildings.

A shot peen (stress-relieving and contour-forming) facility will be installed in Bldg. 78. The in-plant transportation center operation currently occupying Bldg. 78 will be moved to the north end of the plant.

A sulphuric anodic processing system is now being installed in Bldg. 75 **(GD/NEWS, July 27, 1966)**.

The center section running the entire length of Bldg. 2 will be cleared for C-5 component assembly. Spares tool storage and C-141 stock will be relocated to permit on-site tooling in advance of start of C-5 assembly after the first of the year.

Atlas-Launched Lunar Orbiter Is Scouting Surface of Moon

(Continued from Page 1)

injection point, the Agena engine reignited and pushed the spacecraft to escape velocity for its 240,000-mile coast toward the moon.

Cameras on each of the five 850-pound Lunar Orbiters to be launched at three-month intervals are to take simultaneous photographs through high-resolution and wide-angle medium-resolution lenses.

By the time Lunar Orbiter 1 completes its photographic mission about Sept. 15, its high-resolution photos will have given scientists a close-up look at a strip about 3,000 miles long and mile wide with enough clarity to show objects about three feet across. (This is roughly equivalent to a mile-wide strip extending from Seattle to Cape Kennedy.)

The medium-resolution lens will be photographing four times as much area with overlapping to provide three-dimensional views revealing surface contours not perceptible from single photos.

Exposed film is being developed into a film negative and stored on a reel. To return the photos to earth, a beam of light 1/20 the thickness of a human hair scans the image and the resulting electrical signal is transmitted to one of the Deep Space Instrumentation Facility stations at Goldstone, Calif., Madrid, Spain, and Woomera, Australia.

The signal received is recorded line by line on a kinescope and photographed on 35-mm film. SDIF stations are located so that one is always in contact with the spacecraft. Since transmission and photography can not occur simultaneously, most of the photos will be returned after all desired have been taken.

Lunar Orbiter missions are under the direction of NASA's Headquarters Office of Space Sciences and Applications and management of NASA's Langley Research Center with Clifford H. Nelson as program manager.

Convair division's SLV-3 No. 5802 will be shipped from the Kearny Mesa factory to the Cape next week for use in launch of the Lunar Orbiter 2 in November.

If one copy is sufficient, why order more?

First Referral Hired Reports For Work

(Continued from Page 1)

Hartman is glad, too, as "Convair is one of the best places to work in this area."

Robert M. Smith, manager of employe relations and employment, said he is extremely pleased with early results of the referral program.

A total of 153 forms had been received from employes up to early this month. Of the total, 64 were for engineering and technical positions and 89 for factory positions.

Several hundred new employes are needed by the division for work on new and follow-on business contracts.

Smith urged all employes with qualified friends who might like to work for the division to submit information to his office, KM mail zone 130-90.

"Personal contact often is the determining factor," he said. "All we need is basic information about the individual. We will do the rest."

All referrals are acknowledged and each individual making one is notified of final disposition.

RETURN OF WALLET PAPERS REQUESTED

A white wallet belonging to Mrs. Scotty Payne, nurse in Dept. 130-2 at Kearny Mesa, was missing from her purse in the first aid station while it was unattended Aug. 7 during the Management Club picnic at Pecan Park. She requests that personal papers in the wallet be mailed to her home, 3947 Vista Grande Dr., San Diego 92115.

$653 Paid Out For Cost Cutting

A Convair division employe has been awarded $653 for an Employe Suggestion that has substituted a "pressure job" for a "hot" one and is expected to save the division $6,539 and 736 manhours a year in cleaning launch vehicle tanks.

C. E. "Chic" Weber, leadman in Dept. 987-0, had been concerned for some time because 175 lbs. of commercial cleaning agent in 700 gallons of steam-heated water followed by a 2,500-gallon rinse with distilled water was used to remove lodged particles and soils following a hand-cleaning operation with a liquid chemical cleaner.

Weber reasoned that unheated distilled water pumped under pressure against the inside of the launch vehicle tanks might suffice without use of the expensive commercial cleaning agent.

Tests proved him right. Procedures have been revised and cold distilled water is used now in the pressure rinse cleaning operation after hand cleaning as before.

The new procedure will result in gross savings of $2,688 for labor, $1,716 for the commercial cleaning agent and $2,554 for distilled water during the next year.

Cost of document changing and proofing then were deducted in figuring net savings on which Weber's award was based.



CLEANING CHECK—Employe Suggestion check for $653 is presented by Robert Daly, launch vehicle programs manager of manufacturing operations, left, to C. E. Weber, inside liquid oxygen tank opening of Atlas, as Lee Ely, chief of final assembly and mockup, and David La Borde, assistant foreman, right, offer congratulations.

'Bravo' Reports Weather Data Off Bermuda

Weather data now being acquired by the Convair-developed oceanographic data gathering buoy off the Bermuda Islands is being used by the Weather Office at Kindley Air Force Base on the islands as a check on other information used by the office for weather predictions.

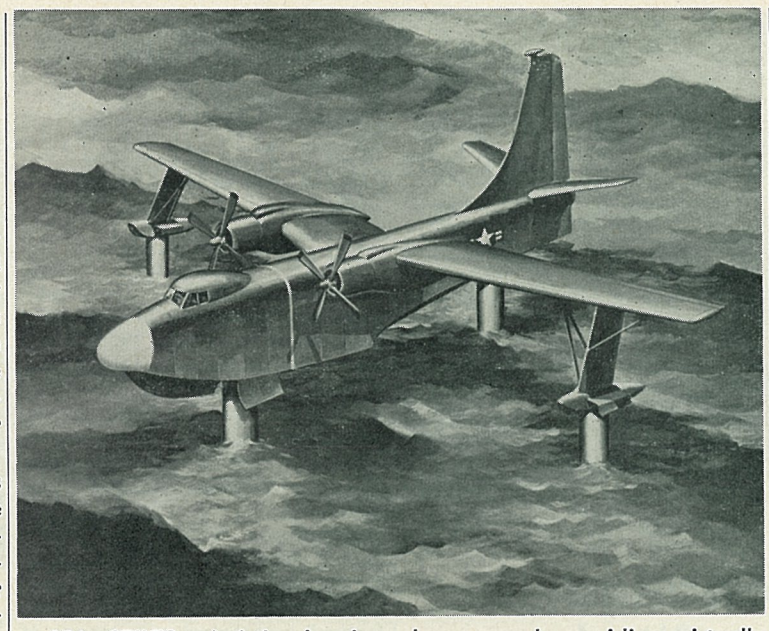
The buoy, "Bravo," first of its kind developed by Convair for the Office of Naval Research, is telemetering information on command twice a day to the Convair mobile data center located at Tudor Hill Laboratory, Southampton, Bermuda. Weather and surface wave data is taken from "quick-look" readouts and called daily to the Weather Office. Permanent magnetic tape records of all data gathered is relayed to San Diego for thorough evaluation. Charles McIntyre, Convair engineer, and Lee Bettis, technician, are manning the mobile center around the clock.

The buoy went on-station off Bermuda, approximately 18 miles offshore Sunday, Aug. 7, according to a cable sent J. J. Beckman, assistant program manager-ONR projects, from Stan Uyeda, in charge of Bravo's Atlantic Ocean testing series. Robert Devereux, Convair's ocean data station program manager, was in Bermuda to observe mooring operations.

Mooring, originally set for the middle of July, was delayed almost three weeks by weather conditions and threatening hurricanes.

The buoy now is riding at the end of a mooring line over four miles long in 2,350 fathoms—just over 2½ miles. The line is 1½-in. nylon, eight-strand plaited, with an electrical conductor in six of the strands.

Four sensor packages along the line will measure dynamic tension and pressure (depth). Ten dummy oceanography sensor packages attached to the line simulate the drag of a fully operational mooring line for information-gathering purposes.



SEA STILTS—Artist's drawing shows seaplane riding virtually motionless above turbulent ocean waters as it rests on vertical floats, now under development for Navy under a contract with Electric Boat's Marine Technology Center at San Diego, Calif.

Design Work Okayed by Navy For Rubberized Plane Float

An $88,000 contract for design of hardware for one inflatable vertical float unit has been awarded Electric Boat division's Marine Technology Center at San Diego, Calif., by the U.S. Navy in a continuation of development of a system to stabilize a seaplane in the open ocean.

Marine Technology Center now has the responsibility for continuing the vertical float program which has been under development by Convair division since 1962. The unique concept was initiated by Eugene H. Handler of the former Bureau of Naval Weapons, now with the Naval Air Systems Command, contracting agency.

The current award is first step in second phase of the overall inflatable vertical float demonstration to prove out the theory that a seaplane can be operated as a platform in open water with minimum motion as it is suspended above the waves on large vertical floats under wings and hull.

Phase one, design study of the concept, was completed by Convair last year following a series of sea tests with a Navy PBM-5.

Marine Technology Center has subcontracted Goodyear Aerospace Corp. of Akron, Ohio, to accomplish the finalized design of one retractable unit to General Dynamics' general specifications. Goodyear will produce design of a float assembly of rubberized fabric, and attachment hardware with provisions for pressurizing and venting.

Hardware design will be submitted to the Navy in approximately three months.

If the Navy approves the design, go-ahead will be given for fabrication, installation, and testing of one unit. Successful completion of this second phase of the program would lead to the final step — production of a complete set of four floats and their testing on a P5A seaplane.

Moe Husain of MTC is coordinating the contract as project engineer.

Only One Week Left For Savings Change

General Dynamics investors in the Corporation's Savings and Stock Investment Plan, both salaried and hourly, have just one week to make changes which will become effective with the next quarter, starting Oct. 1.

Change request forms listing changes in deduction amounts, investment options, or beneficiaries must be turned into employe services outlets at all GD divisions by next Wednesday, Aug. 31.

Forms are available at employe services locations.

AFROTC Cadet Earns Annual GD Award

Cadet Robert S. Heinicke of St. Louis, Mo., has received the General Dynamics Award given annually to the outstanding lower division AFROTC cadet.

Presentation was made at Parks College of Aeronautical Technology in East St. Louis, Ill., and honors the cadet who demonstrated excellent attitude, appearance, military bearing and other qualities contributing to military leadership, from September 1965 through April 1966.

Vandenberg Records 300th Atlas Launch

The 300th launch of a Convair division-built Atlas was recorded Aug. 8 when vehicle 149F lifted off ABRES A Pad 2 at Vandenberg AFB.

Of the 300 launches, 162 were from Vandenberg and 138 from Cape Kennedy. One hundred — 50 from Vandenberg and 50 from the Cape — had been U. S. space program flights. The other 200 ballistic flights included 112 from Vandenberg and 88 from Cape Kennedy.

New Radio Frequency Test Set Marketed

A voltage standing wave ratio (VSWR) and insertion loss test set, designed and built by Convair division to electrically test R-F (radio frequency) transmission lines, has proven so effective it is being marketed by the division for commercial use.

Harold H. Tracy Jr., a senior electronics engineer, and Lloyd W. Duncan, an electronics engineer, of antenna and microwave Dept. 541-0, said "the highly accurate Model 541 test set greatly simplifies precision VSWR and insertion loss measurements of coaxial systems and shortens required measurement time."

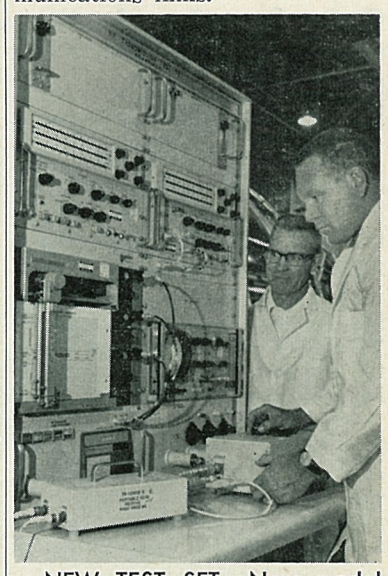
Featuring push buttons for convenient selection of operating modes, the set has calibrating functions built in for versatility. Measurements are shown visually on a dual-trace oscilloscope and recorded permanently on dual X-Y recorder tracings.

The Model 541 consists of basic instruments in a two-bay equipment console and six microwave packages. The basic instruments, in addition to the oscilloscope and recorder, include a sweep generator, D-C amplifier, insertion loss calibration attenuator and R-F switching circuitry. Sweep generator plug-in and transmit heads are included in the microwave packages.

Tracy and Duncan began design work on the new test set in August, 1964, under a NASA contract, after need for "more consolidated instrumentation" and a more automated means of VSWR and insertion loss testing became apparent. Their efforts have been under the direction of Milton Chazotte, assistant chief design engineer in the department.

Personnel in launch vehicle programs telemetry and instrumentation Dept. 963-1, under John A. Hughes, provided R-F systems assistance and testing of the prototype.

Duncan said the Model 541 should have a wide range of applications "anywhere there are R-F coaxial transmission lines." These are expected to include production line and receiving inspection uses; measurement of aircraft, missile, spacecraft, satellite and shipborne transmission line systems; and use in microwave laboratories, ground tracking stations and microwave communications links.



NEW TEST SET—New model 541 voltage standing wave ratio and insertion loss test set created by Convair division is demonstrated by Mark Pruett, left, a Centaur quality control inspector in Dept. 957-0, and J. L. Johnson, leadman in Centaur final assembly Dept. 972-0.

GD 'Reliability Slide Rule' In Use in Many Foreign Lands

The General Dynamics "Reliability Slide Rule" has received worldwide distribution since it was devised about two years ago by G. C. Kolsky, a reliability group engineer in Convair division Dept. 145-1.

Since Dr. William R. Pabst of the Naval Ordnance Systems Command played a tape recording on use of the new rule in June at a European Organization for Quality Control conference in Stockholm, Convair division has received inquiries about the rule from engineers in many foreign countries.

The versatile rule solves reliability problems directly without intermediate steps required with commercially-available reliability calculators. (Under the old system, the engineer looked up a factor, used it to make intermediate multiplications, then used another scale to obtain an answer.)

The new rule has been used in reliability training courses by the Bureau of Ships, the Naval Air Engineering Center in Philadelphia and at most naval shipyards. The Naval Avionics Facility at Indianapolis alone has purchased 1,000 of the rules.

Some of the uses are to:

1. Calculate mission reliability with known mean time between failure (MTBF) or failure rate values.

2. Find the lower confidence limit for MTBF or the upper confidence limit for failure rate.

3. Find the test time or cycle requirements to verify achieved reliability at stated confidence levels.

4. Apportion system reliability requirements to subsystems.

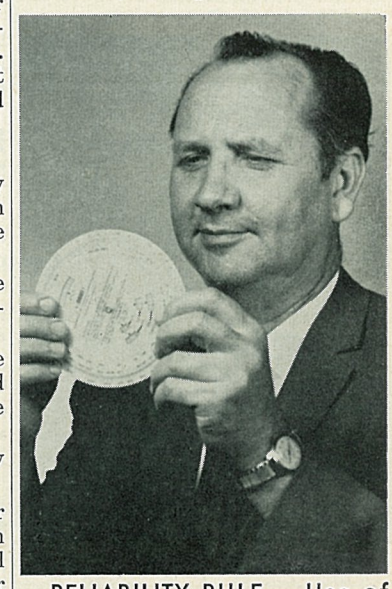
The rule features scales for mission and test time and an MTBF scale with its reciprocal of failure rate. Reliability (or probability of success) is shown in window openings in the scale. Windows are arranged to show failure for 60, 90, 95 and 99 per cent confidence levels.

Scales on the reverse side of the rule for apportioning total system reliability to subsystems were taken from an older Pomona division reliability rule.

The General Dynamics rule was produced after the Corporation decided it would like to provide copies of the best reliability slide rule then obtainable for personnel attending a Bureau of Ships reliability training program.

Designing an even better rule became an "interesting weekend project" for Kolsky after he and other General Dynamics employes assigned as consultants to the Bureau of Ships reviewed commercially available models and were satisfied with none.

A pasteboard model of his improved design was produced by Kolsky. C. S. Thomas, design specialist in Dept. 145-1, now on loan to Electric Boat division, suggested combination of scales and Robert Shields, then Convair reliability chief and now with Canadair, arranged for production of 5,000 copies.



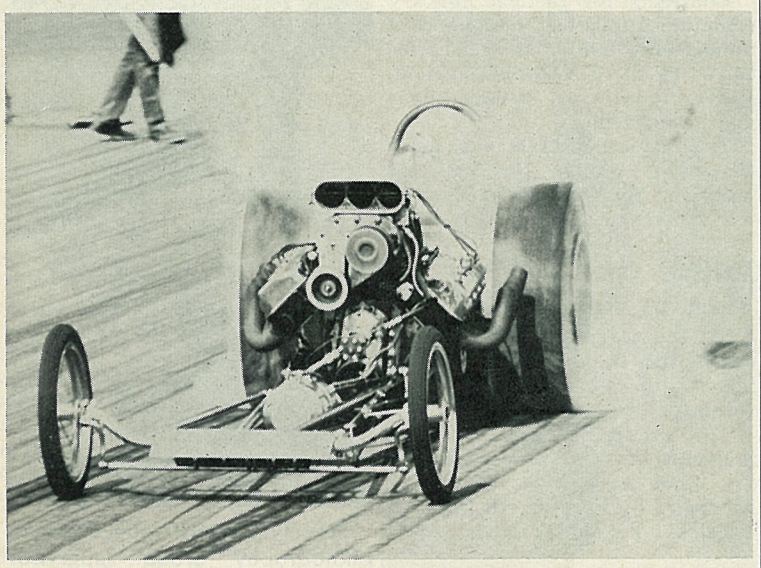
RELIABILITY RULE — Use of General Dynamics Reliability Slide Rule is demonstrated by its designer, G. C. Kolsky of Convair. Thousands of rules are in use throughout world.

People Mobility

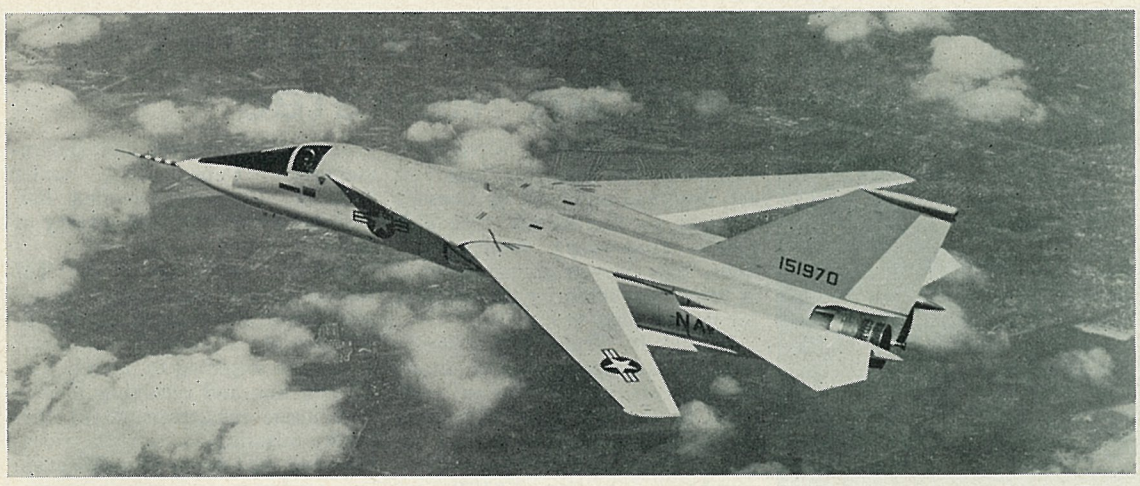
Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the Company.)

HERBERT E. JORDAN (1956) from Pomona division to design specialist, Fort Worth; **PAUL W. DORNBROCK** (1941) from Stromberg-Carlson, Rochester to Electronics, Rochester; **ARTHUR L. CONRAD** (1943) from Convair to Quincy; **HENRY R. VINZ** (1957) from Convair to field support, Fort Worth; **THOMAS J. O'MALLEY** (1958) from Convair to Quincy; **RALPH E. BANACH** (1955) from Fort Worth to Convair as design engineer; **WILLIAM J. McDONALD** (1958) from Convair to senior aerosystems engineer, Fort Worth; **ROBERT G. BUTTRILL** (1951) from Convair to Fort Worth; **HENRY C. GRIFFIN** (1947) from Convair to assistant foreman, Fort Worth; **BILLY R. KAISER** (1963) from Convair to Fort Worth as assistant foreman; **FLOYD E. KIRBY** (1942) from Convair to senior industrial engineering analyst, Electric Boat.



TOP DRAGSTER—Al Voight of Pomona division is one of four young men who combined talents to build and race big money winner in open drag competition—$19,000 since February. Their dragster, shown leaving starting light, set records of 7.2 seconds elapsed time for quarter mile at Long Beach, Calif. and hit top speed of 215.8 mph at Irwindale.



NAVY PLANE—F-111Bs have flown 141 hours through mid-August. One of them is shown flying from Grumman's Peconic plant, New York.

Sub Overhaul Earns Praise

Overhaul of the Polaris submarine Patrick Henry has earned a commendation from the Atlantic Submarine Force Commander for Electric Boat division.

Vice Adm. Vernon L. Lowrance, in a letter to division president J. William Jones Jr., congratulated the shipyard "for the outstanding job accomplished."

The Admiral, who was aboard the vessel during its recent voyage from New London to Charleston, S.C., said he "was most pleased with the appearance and material condition" of the ship and extended a "well done."

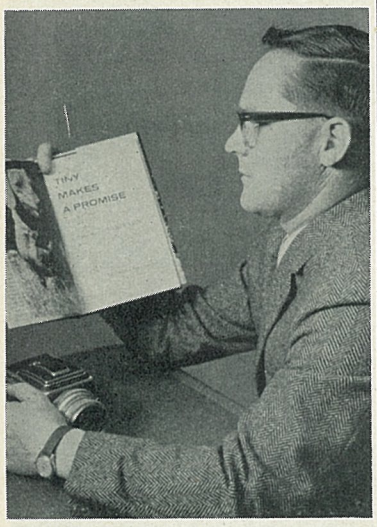
Overhaul of the Patrick Henry included refueling and equipping the sub to carry the 2,500-mile-range Polaris A-3 missile. The shipyard is presently completing similar overhauls on two additional Polaris subs, the Theodore Roosevelt and Abraham Lincoln.

NEW PARKING LOT TO OPEN AUG. 29

Additional parking facilities for employes at Convair's Lindbergh Field plant will be opened next week (Aug. 29), W. L. Van Horn, plant manager of Lindbergh Field operations, announced.

The newly-acquired area is along the west side of Kettner Blvd., south of Sassafras St., under the freeway access. The lot, leased from the State Department of Highways, has been paved, striped, fenced, and equipped with bumper protectors and wheel stops. It will provide parking for 150 cars.

In addition, the Spruce St. right-of-way between the new lot and the employe parking lot at the corner of Kettner and Sassafras has been obtained to allow continuous parking from the corner of Sassafras south to the southern boundary of the new parking area. As soon as the new lot is ready for occupancy, the Kettner and Sassafras lot will be closed for cleaning, oiling, and striping. The entire parking area (350 cars) will be open by the middle of September.



AUTHOR—Merle Lien, Convair electronics packaging design engineer, looks over copy of his recently published children's book. Book features photos Lien made of family pets, miniature dachshund and Siamese cat.

Flight Tests Continue, F-111 Air Hours Climb

Air Force and Navy F-111s had logged a total of nearly 1,356 hours in the air on 829 flights through mid-August.

F-111As amassed over 1,214 hours on 726 flights; F-111Bs reached over 141 hours on 103 flights. Supersonic speeds were reached on a total of 299 flights.

F-111B No. 4 — first Navy SWIP (Super Weight Improvement Program) airplane—made its initial flight in July from Grumman's Peconic plant in New York. The plane is now undergoing ground-vibration tests preparatory to establishing the plane's flutter envelope.

Both F-111B No. 4 and No. 5—slated for completion soon—are 3,000 pounds lighter than the first three Navy planes built. They also include many other improvements made since the test program began.

Weight reductions and other improvements on the SWIP airplane are designed to bring them closer to Navy weight requirements and to exchange overall flight performance.

Shortly after it is rolled off the assembly line, No. 5 will be put through a series of accelerated flight-performance evaluations. Navy pilots will then put No. 5 through an NPE (Navy preliminary evaluation), probably in early December.

Meanwhile, flight-testing continued apace at the various test sites across the nation.

F-111As No. 1, 4, 8 and 9 were being put through various performance tests at Edwards AFB, Calif., while F-111As No. 7 and 10 were being flown from Eglin AFB, Fla.

At Fort Worth, F-111As No. 2, 3, 5, 6, 12, and 14 were participating in various phases of flight-testing.

Testing of F-111Bs No. 1 and 2 continued at Grumman. F-111B No. 3 remained at Hughes Aircraft in California, where it is being fitted for a prototype of the Phoenix missile system.

Overall, the flight-testing program is proceeding according to schedule and with very satisfactory results, according to Bob Moller, manager of flight test.

G. W. Cowan to Head Ducks Unlimited

George W. Cowan, Convair material project administrator, has been named chairman of the 1966 San Diego Ducks Unlimited steering committee. As chairman, Cowan heads a volunteer conservation group of 40 San Diego supporters who will plan the local chapter's 23rd annual fund-raising party in October.

Ducks Unlimited is a nonprofit international organization which raises funds for restoration and maintenance of waterfowl breeding grounds in Canada.

Counter-Measures Contracts Awarded

More than $1 million in contracts for counter-measures equipment and anti-submarine warfare gear have been received by Electronics division.

Contracts include communications equipments for the Navy and airborne and other counter-measure equipment for the Army. Work is being done in the Rochester plant.

Weight Engineers Will Meet Friday

Members of the San Diego Chapter of the Society of Aeronautical Weight Engineers (SAWE) will meet Friday (Aug. 26) at Islandia Hotel with social hour at 6 p.m. and dinner at 7.

Robert Boyd, an instructor for the Don Robinson School of Memory, will lecture after the regular business session.

Budge Lee Named To Advisory Panel

Budge V. Lee, Fort Worth division Dept. 4-0, has been appointed Corporate representative on the small business advisory panel of the Aerospace Industries Association.

The appointment was made by C. G. Keach, Corporate director of material. Lee is Fort Worth division's small business liaison officer.

ANNUAL JOURNEY TO MEXICO BEGUN

Nineteen tourists entrained Aug. 13 for the sixth annual General Dynamics tour to Mexico. This is the sixth year that Jim Hardison of Convair service parts has conducted the two-week trips. Departure was from Mexicali by air-conditioned train.

Over 150 Teen-Agers Tour Convair Plant

Four groups totaling more than 150 teen-agers and sponsors from California and Arizona toured Convair division's KM plant last week.

Twenty-seven Yuma, Ariz., area high school youth on a field trip sponsored by Arizona Western College and 25 students from a guidance class at the California Department of Employment's San Diego Youth Opportunity Center visited the plant August 16.

Seventy cadets from California Civil Air Patrol squadrons on a 10-day training encampment at Miramar NAS were visitors August 18, and 25 exceptional students on tour sponsored by the Arizona Public Service Company visited both Convair and General Atomic facilities August 19.

S-C Data Products Will Picnic Sept. 10

Stromberg-Carlson Data Products families will gather for their annual picnic Sept. 10 at Kearny Mesa Missile Park from 11 a.m. until 7 p.m.

One dollar per family will pay for catered barbecued beef dinners all around. Beer, punch, and ice cream will be provided free.

S-C Recreation Association has arranged a full day of baseball, bingo, dancing, besides raffles for both adults and children, and free rides for the youngsters on the merry-go-round and miniature train.

Tickets are available now within Data Products departments.

'Goals' Response In Division Held Gratifying

Convair division officials have been "extremely gratified" by enthusiasm with which departments and functions are implementing expansion of the "Do Good Work" program, W. E. Magnuson, chairman, said last week.

Under the expanded program, departments and functions are establishing quality-related objectives and are beginning to plot progress toward goals on wall charts.

Magnuson said that department heads, supervisors, and employes all are enthusiastic about plans to use "management by objective" techniques as a means of improvement.

"Our expanded program and its emphasis on improved performance will help constantly remind each employe of the importance of his work to the division and its success," he said.

Each employe also is being asked to sign a personal pledge indicating he will strive to the best of his ability to attain the goals and achievements of the program.

Magnuson said many departments already have returned pledge cards signed by 90 or 95 per cent of the employes with the remainder to be returned at the end of vacations or special assignments.

Taped recordings of talks by Jack L. Bowers, Convair division general manager, and Col. James R. Ourand, Defense Contract Administrative Services plant representative, at the "Do Good Work" program expansion kickoff have been sent to the Eastern and Western Test Ranges for similar meetings there.

ETR and WTR personnel also will see the Department of Defense film, "Zero Defects—Right the First Time," that was shown at the kickoff meetings at Kearny Mesa and Lindbergh Field plants.

Supervisors Tour Kearny Mesa Plant

All members of the San Diego County Board of Supervisors toured Convair division's Kearny Mesa plant early this month and were briefed on General Dynamics and Convair products and capabilities by Jack L. Bowers, division general manager.

"My sincere thanks for the gracious hospitality extended," T. M. Heggland, the county's chief administrative officer, wrote Bowers.

"We were tremendously impressed by the vastness of the Corporate operations . . . Your Company is indeed a substantial member of San Diego County's industrial community and it was most encouraging to get the message that its strength is growing."

Electronics Receives Military Contracts

Contracts for tactical military communications test equipment of almost $2½ million have been received by the Electronics division, Parker Painter Jr., general manager, reported.

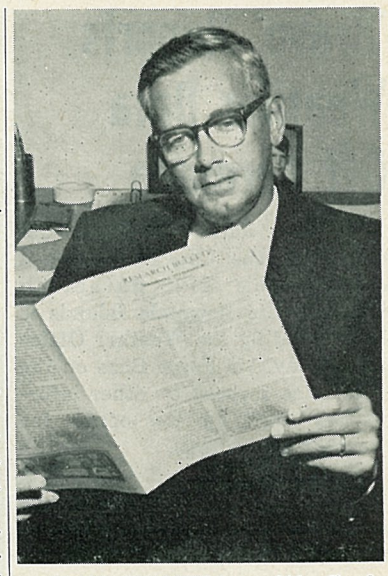
The largest contract was more than $1½ million for 153 test units for the AN/GRC-106 combat radio.

British Officers Pay Visit to Fort Worth

Fifteen ranking officers from the British Imperial Defence College visited Fort Worth division recently.

The group included the commandant of the college, General Sir John Anderson. They were welcomed by Fort Worth Division President Frank W. Davis.

Is it news? Pick up a phone and call GD/NEWS



NEW BULLETIN — W. E. L. Boyce, Convair division director of research and information sciences, looks over first issue of new quarterly Research Bulletin.

Research Bulletin To Highlight Convair Science Capabilities

Convair division's Research and Information Sciences department has published the first issue of a new Research Bulletin designed to acquaint executives in the military services, government and other industrial firms with the division's capabilities in life, information and space sciences.

W. E. L. Boyce, director, said the four-page, buff-color bulletin will be published quarterly. A computerized mailing list of 1,500 has been established with additional names to be added upon request.

Information on the division's Integrated Manned Systems Simulator and the prototype life support system designed and built under contract from NASA's Langley Research Center was included in the first issue.

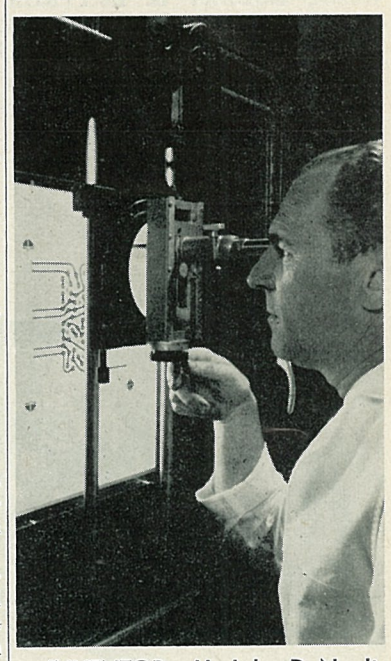
The second issue, to be distributed in October, will include articles on the division's use of computers for improved space vehicle tracking and work on electric propulsion systems for deep space use.

Division personnel wishing to be placed on an in-house distribution list may phone Paul Z. Rider, KM ext. 1012.

Gen. McCoy Visitor For Convair Tour

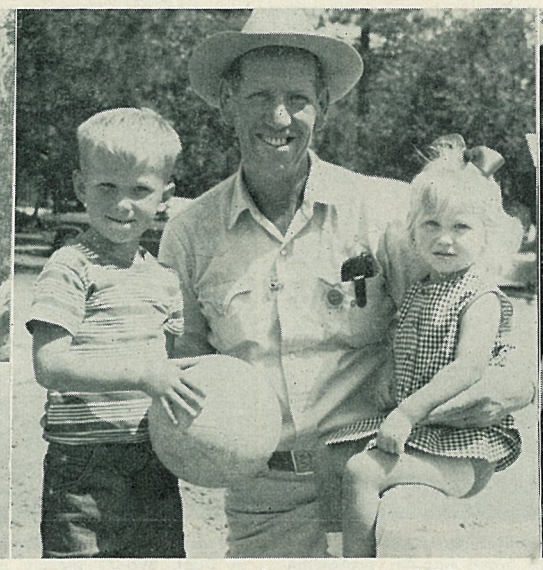
Maj. Gen. J. L. McCoy, new commander of the Air Force's Ballistic Systems Division, was guest of Convair Aug. 9 for a briefing and plant tour.

General McCoy was welcomed by Jack L. Bowers, Convair general manager, and was briefed on both General Dynamics and Convair division capabilities and product lines. C. S. Ames, vice president-military space programs, was host.



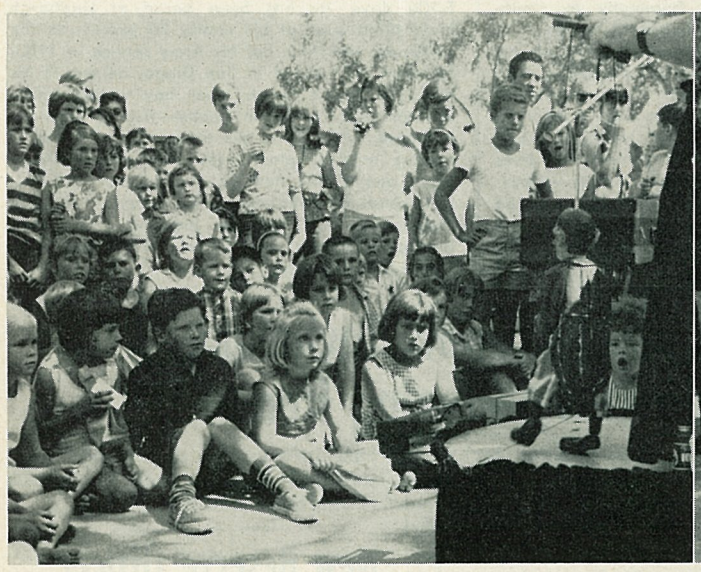
INVENTOR—H. John DeNault, photography group supervisor (Dept. 6), is latest at Pomona division to receive cash award on an issued patent. U. S. Patent 3,259,556, "Ribbon Electroplating Method," was filed Sept. 25, 1964, and issued July 5, 1966.







IN THE HILLS—CRA's Pine Crest resort on Highway 79 three miles from Julian, was site for electronics department picnic Aug. 13. Amateur musicians entertained (left) and there were games and egg-throwing contest. Jack Clendenon, resident manager of 90-acre recreation area, is shown with Michael, 4, and Liane, 2, children of Jerry Letzring. Clendenon is known to children as "Ranger Jack." Many Convair families camp out in area for entire vacations.







GALA AFFAIR—Management Club picnic at Pecan Park offered varied entertainment and refreshments. Smokey Rogers (right) played banjo; Mel Benton as clown brought laughs (shown in center with Deborah Dian Marx, 2); and there was puppet show (left). Club provided drinks and ice cream.

Convair Sponsors New Tooling Training Class

A new Company-sponsored training program was inaugurated this month at Convair for tooling trainees who will receive a full month of intensive classroom and shop instruction before going on the job in the division's tooling department.

Administered by educational services, the program will tie in with the division's arrangement with the San Diego Mayor's Committee for Jobs, Inc., under provisions of the Federal Manpower Development and Training Act.

Fifteen young men, first contingent of approximately 100 who eventually will be trained, started the course Aug. 15. Another group of 15 will begin instruction on Sept. 12, and, according to present plans, 15 will be added each week thereafter until the total number has been through the program, J. A. Croft, chief of educational services, said.

Classroom instruction is conducted in a new training area just installed on the southeast mezzanine of Bldg. 1 at Lindbergh Field plant. Work stations have been set up for a maximum of 30 students and equipment, including a band saw, pedestal grinder, drill presses, has been installed in the classroom so that trainees can learn how to operate the machines before they are assigned to a job.

Experienced tooling men — E. F. Gurling, Dept. 401-4 assistant foreman who developed the course, assisted by Loren Smith and Charles Heller, also of Dept. 401-4 — are instructing. Sam Galasso and Dick Forrest of Dept. 130-3, educational services, will assume a share of the instruction task as necessary. Harry Miller and Wayne Turner of educational services are coordinating the 160-hr. training program.

The first two weeks will be spent in basic classroom work; aircraft familiarization, aircraft manufacturing, tool manufacturing, trade appreciation, blueprint reading, tool design reading, familiarization with materials and tools. Students will be required to make some of the tools they will be using on the job.

At the end of the initial two weeks, trainees will go into specialized training in various categories—such as tool and die-maker, template maker, jig and fixture builder, form block maker—according to individual capabilities. In the shop the young men will get a working knowledge of how to make tools, from a blank die through to the finished product. They will learn safe and proper use of equipment, principles of safety and housekeeping in the shop, and how to work to tool cards and tool designs.

According to Croft, the tooling training program will prepare young men for a specific trade and equip them with the basic fundamentals in advance of job assignments so that they will be much more valuable workmen when they go into the shop.

* * *

Meanwhile, ten new machine operator trainees started the same day in a 32-week training course in Lindbergh Field plant Dept. 015, machine shop. The current training session is a continuation of a classroom and on-the-job instruction program which has trained about 30 so far.

1,000 Frolic At Club Picnic

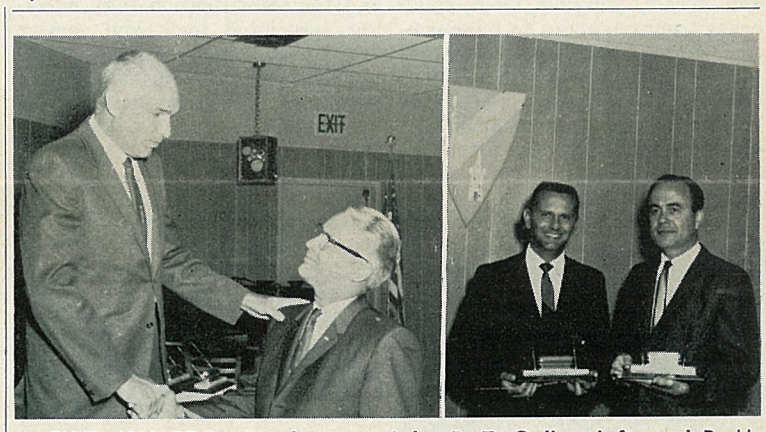
More than 1,000 members of Convair Management Club families enjoyed a "warm but wonderful" day Aug. 7 at the club's annual picnic at CRA's Pecan Park east of El Cajon.

They downed 2,400 soft drinks, 20 kegs of beer, 1,200 popsicles and 1,680 ice cream bars and the kids were given 700 grab bags filled with candy, gum and toys.

There were dance contests, bingo games, softball games, football games, foot races, shoe races, sack races, balloon contests, bubblegum blowing contests, a treasure hunt, horseshoe games, volleyball games, shuffleboard and ping pong.

Special entertainment included a puppet show, a magic and unicycle show, karate and judo demonstrations.

Gerry Cox and Clyde Medearis were co-chairmen for the event under John Hopman and Frank Blair, general chairmen. They were assisted by Sam Special, Clarence Strand, Paul Pearson, Ben McMicken, Bill Cushman, Chuck Lacy, Jack Kline, George Landy, Mike Alianelli, H. J. McDuffee, Harry Rote, Tom Mitchell, Carl Banke, Don Anderson, Dick Blommer, M. L. Bjorstrom, Tex Vining, Howard Woodard, Lou Fischer, and Del Dimmitt.



CLUB AWARDS—In photo at right, P. E. Gelles, left, and R. M. Williams, display desk pen sets received from Convair Management Club in recognition for services last year. At left, J. R. King, past president, presents certificate to Ralph Bauman in appreciation for services as a director of National Management Association.

50 Mgt. Club Members Honored For Services

Convair Management Club presented more than 50 awards to members for outstanding service during the 1965-66 year.

Desk pen set awards were presented to R. M. Williams of Dept. 586-0 for work as manager of the education committee and to P. E. Gelles of Dept. 141-2 for efforts as manager of junior activities, and to R. C. Emerson of Dept. 403-3, chairman of special tours.

A special certificate was awarded to Ralph Bauman of Dept. 756-0 for having served the local club and the San Diego area as a director of the National Management Association.

Desk nameplate awards were presented to E. W. Allen, 432-0; L. H. Allen, 834-1; C. L. Amaral, 140-1; D. E. Anderson, 780-4; V. J. Baros, 591-0; V. S. Caldwell, 959-0; B. J. Cendali, 954-5; G. C. Cooper, 591-0; C. E. Davis, 250-0; R. A. Elliot, 595-0; F. L. Erwin, 403-2, and A. B. Farnell, 595-0.

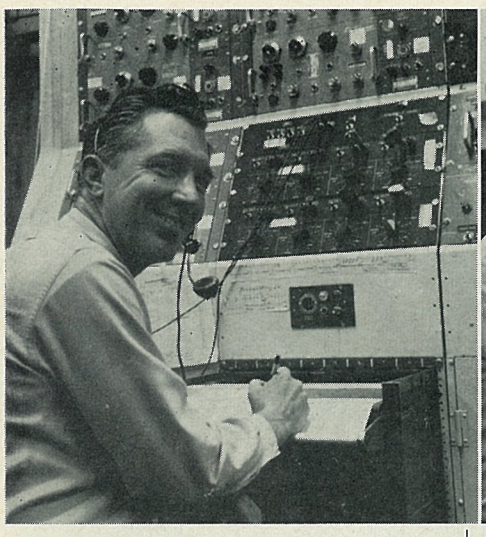
Also R. W. Hardy, 847-0; W. H. Hill, 961-0; Terry Kell, 423-0; W. E. Magnuson, 140-0; Robert Montague, 124-0; A. R. Mosco, 195-3; M. E. Nunn, 574-3; D. S. Ruder, 964-4; and G. O. Withem, 170-1.

Certificates were awarded to J. C. Abels, 834-1; R. T. Blair, 100-1; W. O. Bowman, 962-3; W. F. Chana, 581-3; C. F. Crownhart, 967-3; D. D. Dimmitt, 130-1; L. F. Finnerty, 964-4; R. F. Fredrick, 959-0; G. F. Gormlie, 300-5; L. H. Green, 978-3; D. E. Herbert, 553-1; J. E. Horne, 961-4; and H. P. Hurt, 191-0.

Also H. L. Jensen Jr., 963-4; D. L. Johnson, 835-4; W. S. Mears, 953-1; Melvin Mills, 574-2; L. A. Milton, 146-0; R. M. Mitchell, 964-4; R. A. Moore, 959-0; J. E. Neff, 193-1; R. F. Patterson, 816-1; V. A. Petricola, 423-0; W. J. Ridge, 192-0; J. E. Royle, 130-7; R. L. Rutter, 834-2; V. M. Salazar, 780-4; F. N. Thudium, 565-1; and R. L. Sattro, 143-2.



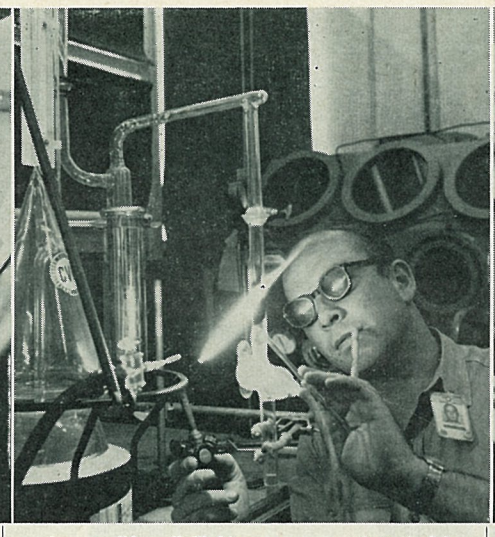
TOOLING TRAINEES—Instructors Ed Gurling (foreground), Sam Galasso, Charles Heller (back to camera) and Loren Smith, in background, brief first group of trainees in new Convair tooling instruction program on opening day of 160-hr. course. Training is in classroom facilities installed on Bldg. 1 mezz at Lindbergh Field plant.



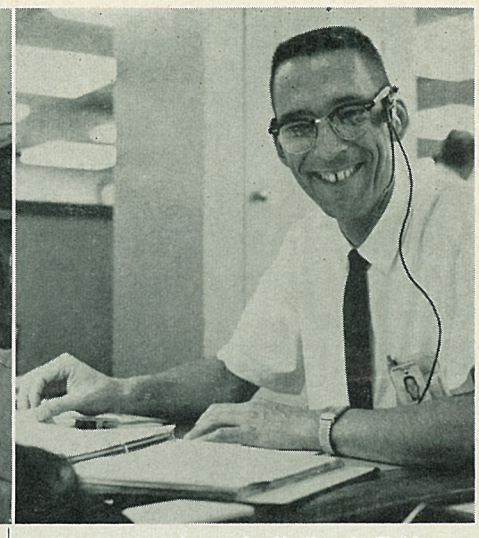
George F. Lang, an instrumentation technician in Convair division's gas flow laboratory, Dept. 756-0, at Kearny Mesa is shown operating a Sanborn recorder during production evaluation of an airborne helium regulator for an Atlas SLV-3 fuel tank. Instrumentation in the laboratory calibrates and records fuel flow rates, inlet and tank pressures, altitude simulation and temperature while tests are being run on specimens in adjacent vacuum chambers. Lang, a native of San Diego and a Convair employe since 1951, lives with his wife, Eileen, and a daughter, Linda, 15, on Kearny Mesa and enjoys attending auto races at Cajon Speedway and the roller derby during his spare time. He attended San Diego State College, served in the Air Force in England as an ordnance technician during World War II and attended an electronics school in Los Angeles.



Wendell Baker Jr., senior illustrator in art and editorial (Dept. 126-0) broke into his profession the hard way, working full time on the day shift in the Lindbergh Field paint shop for 10 years while taking courses at night to qualify himself as a technical illustrator. After attending San Diego Junior College classes in electronic drafting and technical illustrating he piled up several years' experience on his own time before transferring to art and editorial six years ago. His background also equips him for a variety of other trades—from furniture finishing to chef. Since his three-year stint with the Navy as ship's cook, he keeps in practice by staging the family's annual holiday dinners. Otherwise, he says he spends most of his spare time adding to his East San Diego house where he, his wife, Billie, and four daughters, 17, 14, 8, and 7, make their home.



Jerome "Jerry" Tinkham, a research technician in Dept. 596-0's plasma physics lab at Kearny Mesa, learned the art of glass blowing from a professional three years ago and has become so adept he now does miniature glass blowing with a tiny torch he made himself. He has used his glass blowing talent frequently to create glass-to-metal seals and diagnostic probes for use in plasma physics research. Some of his probes have .050-inch inside diameters and some .010-inch-diameter tips. Tinkham studied welding after graduating from high school in Seattle and does acetylene and hydrogen welding on intricate or special lab projects. He lives in Poway and has a profitable hobby—speculating in real estate. He served four years in the Air Force as a flight line electrician and worked for Rocketdyne, Boeing and RCA before joining Convair six years ago.



George Axt, buyer in Lindbergh Field operations' purchasing (Dept. 847-1), joined Convair as a dispatcher in 1947. After a couple of years he transferred to purchasing department, learning the business on the job so well that he raised to senior buyer and then to supervisor during F-106 days. He has been based at Lindbergh Field plant most of his nearly 20 years with the company, with time out for Army service in 1950-52. Born and raised in San Diego, he makes his home in Pacific Beach, near bay waters where he can enjoy his main hobby—fishing from his outboard motor boat. His other major interest is raising tropical plants. He was photographed using one of the new lightweight mobile headsets used by Lindbergh Field buyers to free their hands and eliminate juggling of a heavy instrument during long hours in business telephone conversations.

They're in Business

Production of Name Plates Novel Sideline in Photo Lab

Convair's still photo section operates a business "on the side" that is seldom associated with photography, as it turns out a vast array of metal name plates and decals, ranging from small brass trophy plaques to huge control panels as large as 48x72 inches in one piece.

Although Convair's photo lab has been making name plates for years, including identification and interior plates for Convair-Liners, jet transports, and Atlas missiles, it went into the decal field more recently when it assumed work formerly done in the paint shop and by service publications.



PLATE MAKERS—Convair still photo lab's Joe Kersey, graphic arts technician, checks over sample book of name plates and decals produced in division's photo lab. Variety of materials and finishes are available for many uses—from trophy plaques to console control panels.

Latest decal creation is one for the division's fire department in decorative gold and black lettering! Largest decal made so far is an 84x42-in. Air Force insigne for the Atlas missile.

Name plates come in aluminum, stainless steel, and brass, depending upon the intended use.

Aluminum plates can be color anodized, black anodized, or etched and paint-filled. The color anodize method is generally used for decorative interior trim plates within aircraft, such as seat identification or oxygen mask instruction. Black anodized plates are standard for instrument dials, circuit breaker panels, and control panels. The black anodized plates have a longer life and are more corrosion proof than other types of finish as the dye is impregnated into the metal surface by electrical current and doesn't wear off with use. Etched and paint-filled plates are used mostly for operation and service instruction plaques inside aircraft and for identification tags marking associated tools and service equipment.

Stainless steel is used wherever permanent identification is required. For instance, stainless steel is always used for the FAA registered number of an aircraft, which like a car registration slip, must never be destroyed. In case a plane or missile is destroyed, the stainless steel plate bearing the vehicle's number can always be deciphered.

Brass is used for small crimp-type or wrap-around tags on cables and electronic wiring set-ups, or for display and trophy plaques.

Large console control panels of 3/16-in. to quarter-inch aluminum sheeting have been made for Eastern Test Range blockhouses.

Silk screen process is used to produce signs, posters, book covers, and decals in quantities. There is no limit to the color combinations possible by use of the silk screen process and the quality of the finished work can be depended upon to be consistently high.

New processes and materials are employed constantly to improve the photo lab's methods to keep name-plate and decal production as fast and efficient as possible.

Although most orders are for short runs, less than 500 and for the most part less than 100, the lab has just completed an order of 5,000 metal inventory control tags for test equipment and keeps 1,000 calibration seal decals on hand for the Electronics division.

Lab technicians work from blueprints, hand sketches, or sample parts with instructions and orders can be initiated at either Lindbergh Field or Kearny Mesa photo lab by a photo requisition with a drawing attached or a production control release and shop traveler. Departments can get the standard price list by a call or visit to either of the division's photo labs.

CONVAIR SCULPTOR'S WORK ON DISPLAY

"Ecstasy of the Sea," a five foot high sculpture of a mermaid riding a dolphin, created by Frank Morgan of Convair 533-2, is on display throughout August in the annual Fiesta Art Festival. Exhibit, sponsored by the Art Institute of San Diego, is in the House of Charm, Balboa Park.

Deadline Is Tomorrow On Charger Tickets

Football fans can still buy reduced price tickets to the Chargers last pre-season game with Boston this Saturday (Aug. 27). Regular $3.50 seats will be on sale for $2.50 until 4:30 p.m. tomorrow, Thursday, at all employe services outlets at Convair, Stromberg-Carlson, and Electronics.

Discount tickets, at the same price, for the pro team's first home game Sept. 4 with Buffalo will be on sale from Aug. 29 through Sept. 1. Game time is 1:30 p.m.

Sale dates for the Sept. 10 game with Boston will be from Sept. 5 through Sept. 8. Seats are located on the west side, upper and lower decks.

Series of Dancing Classes Will Start

A new series of beginning and intermediate ballroom dancing classes starts next month to give GD couples a chance to get in the swing in time for holiday parties.

Sign-ups may be made at the first two class sessions, Sept. 19 and 26, Commissioner Royce Riggan said.

Both courses will be Monday nights for 12 weeks in the CRA Clubhouse auditorium. Beginners' class meets at 7 p.m. and intermediate at 8:45. Cost is $18 a couple.

Bob McGlade, professional instructor, will conduct both classes.

Call Riggan, ext. 1018 LF, for details.

ARTIST TO HOLD OUTDOOR SHOW

Thomas Potts of Convair Dept. 420-7, well known watercolor artist, will hold a one-man outdoor show this weekend (Aug. 27-28) in Rancho Santa Fe, at the corner of La Granada and Paseo Delicias. He will display at least 50 of his latest works, featuring landscapes and marine scenes.

Electrical Current Technique Eliminates Soldering Iron

A Convair division technician has solved the problem of "never having enough hands" when soldering wires into Centaur electrical connectors.

William M. Treichel, a mechanical-electrical technician in Centaur final assembly Dept. 972-0, devised the technique, which has been reported to NASA as new technology.

His system involves establishing an electrical connection that heats up the prong to which a wire is to be attached. The heat melts the solder when it is applied and a firm connection results. A foot control turns current off and on as required.

The system eliminates a soldering iron, leaving hands free to hold solder in one hand and electrical wire in the other.

Charles McCabe of Dept. 964-0's new technology reporting staff said NASA plans to distribute information on the new system so it may be used as desired throughout industry.

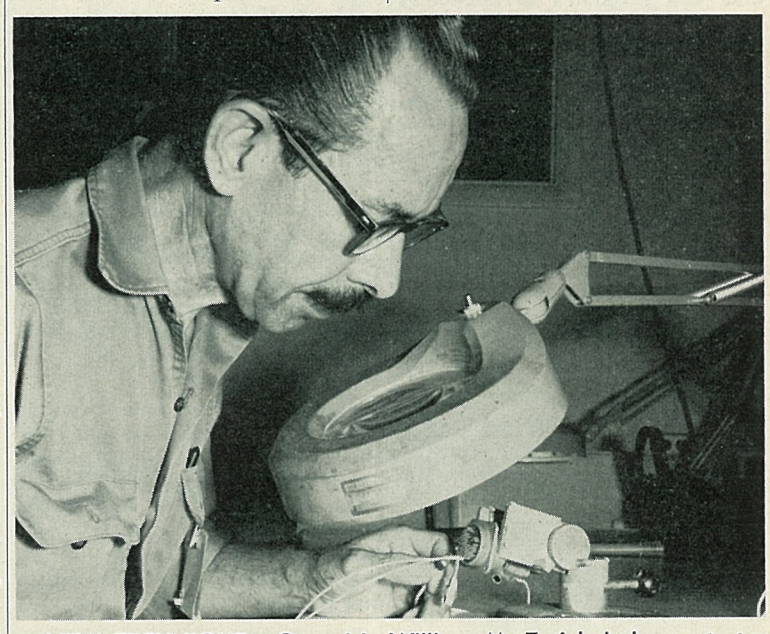
New Reserve Officer Unit Will Be Formed

Reserve officers from all branches of the service are eligible to join a San Diego-based reserve officer unit attached to the Defense Contract Administration Services Region (DCASR), now in formation stages.

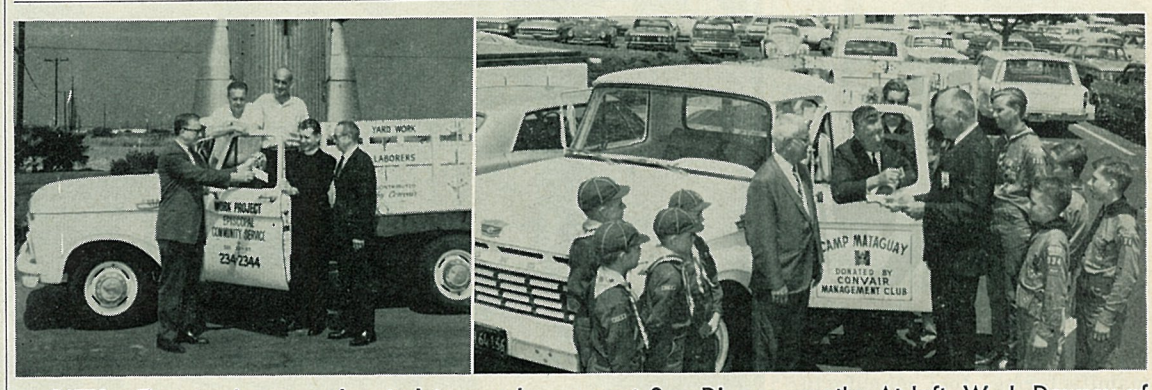
The unit is open to reserve officers with contract administration and procurement background.

Meetings will probably be held two Fridays a month from 7 to 9 p.m. at AF Plant 19.

Lt. Col. E. M. Amundsen (AF Reserve) of Elestronics-SD will give information at ext. 1165, LF plant.



NEW TECHNIQUE—Convair's William M. Treichel demonstrates soldering system he devised. Note clip at bottom of photo. This makes electrical connection, heating tiny prong to which wire must be attached.



GIFTS—Two trucks were donated to good causes at San Diego recently. At left, W. J. Dawsey of Employes' Con-Trib-Club presents keys to Rev. Arthur G. Elcombe, director, and Vice Adm. R. E. Libby, USN, ret., board member, of Episcopal Community Service. At right, J. R. King and G. J. Gonlag, on behalf of Convair Management Club, turn over truck to Henry Boney, president of San Diego County Council of Boy Scouts, for use at Camp Mataguay.

Sports & Recreation

CRA Group Planning Weekend At Big Bear Lake Sept. 23-25

CRA Ice Skating Club has reserved the entire Wawona Lodge at Big Bear Lake for its annual "Autumn Weekend" Sept. 23-25.

Accommodations include 10 lodge rooms with private baths, for two to five persons, and 18 housekeeping cabins for family groups, up to 12 persons.

The Prophet Co., operators of Convair cafeterias, will supply the food which will be professionally prepared in the lodge kitchen and served by volunteers. Meals include ranch-style breakfasts on Saturday and Sunday, a poolside buffet Saturday noon, and a barbecue dinner Saturday night.

"Activities range from complete relaxation on a chaise lounge to a jam-packed schedule of hiking, horseback riding, swimming, bowling, and, of course, ice skating," Commissioner Bud Davies said. "There will be dancing and cards on Saturday night."

Cost of the entire weekend, including two nights' lodging and four meals, is $13 a person; children under eight, $6.50. Transportation is not furnished.

Reservations may be made at CRA Clubhouse, ext. 1111, Kearny Mesa, or employe services, Bldg. 16, Lindbergh Field, ext. 430. Deadline for sign-up is Sept. 16.

Contact Davies, ext. 2751 KM, or Joan Kosen, 274-5227, for information.

CARROLL'S DAHLIAS WIN BEST-OF-SHOW

Arnold Carroll garnered four best-of-show awards in CRA Garden Club's annual Summer Flower Show in which some 1,000 dahlia blooms were displayed in the Floral Association Bldg., Balboa Park on July 31.

Carroll garnered "best bloom in show" honors as well as awards for largest, best three medium blooms and smallest bloom.

Charles Splinter had best large bloom and best pompon; Martin Walsh, best three miniatures; LaVonne Splinter, best citrus fruit; Ray Sharman, best fruit; Opal Carroll, best arrangement; Carolyn Buman, best corsage; Jim Buman, best vegetable; and Janice Zimmerman, best children's entry.

Convair exhibitors have won 16 trophies and 10 dahlia medals in other shows, a record for the division's garden club, Commissioners Everett Henderson and Gene Zimmerman report.

Displays by CRA Garden Club members at the San Diego County Fair won exhibitors over $1,000 with Bill Dickinson, Dept. 526-6, winning top cash award of $350.

Practically all top awards at the Inglewood Dahlia Show late last month went to Convair people.

Tourney and Picnic Planned Sept. 10

Families and friends of Convair Dept. 964-0, configuration management and documentation, will stage a golf tourney and picnic Saturday, Sept. 10.

The golf tournament will be at Mission Bay course in the morning, and the picnic at CRA Missile Park, KM, in the afternoon.

Call Bill Kenney, ext. 2001 KM, on golf, and Chuck McCabe, ext. 1823, KM, for picnic details.

Novice Netters Hold 'Graduation' Tourney

Twenty-five participants in a 10-week beginners tennis course recently had "graduation exercises" in the form of a round-robin tournament on CRA courts.

Winners trophies went to Bob Stecker (son of L. M. Stecker of Dept. 958-6) and Loretta Blevins (wife of C. H. Blevins of Dept. 125-0). Finalists were Curt Harshaw of Dept. 551-4, Thelma Zivolich (wife of E. A. Zivolich of Dept. 566-1) and Blevins.

A new beginners class for General Dynamics employes and families opens at 5 p.m. Sept. 13 on CRA courts. Contact Bob Herold, KM ext. 3392, Bill Connor, AF Plant 19 ext. 1393, or Ray Hardy, LF ext. 1405.

Paint Shop in Bldg. 1 at Lindbergh Renewed In Three-Month Extensive Overhaul Plan

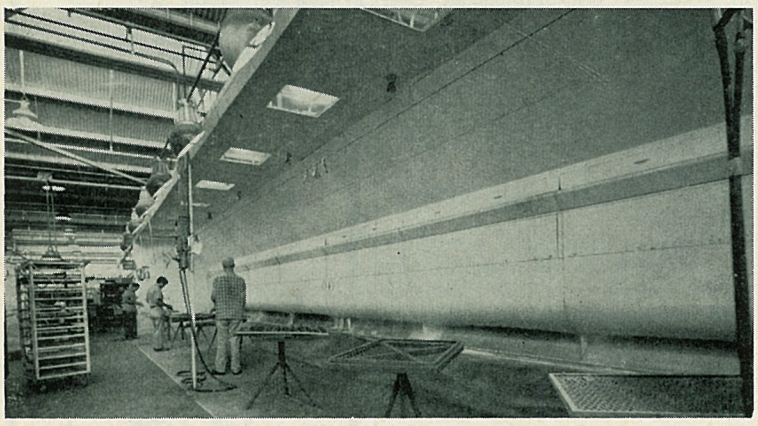
Renovation of Convair's paint shop in Bldg. 1 at Lindbergh Field has been completed after a three-month overhaul.

"Normal paint operations were continued as usual on both shifts in spite of the extensive construction work," said F. M. Baxter, assistant foreman in charge of paint facilities at Lindbergh Field. "We were able, by alternating booths and shifting our work to other locations, to keep up normal output and still not slow down the new installation."

The 60-ft. spray booth along the west wall was replaced. A new waterfall system for trapping paint overspray and exhausting the paint fumes through the water to keep them out of the air was installed and motors overhauled.

The straight-line conveyor system, 120-ft. long, and the smaller circular conveyor system were both renovated with new water pans and piping, and new temperature-controlled steam dryers, paint booths repaired and electric motors overhauled.

A semi-automatic pressure system carrying a constant flow of circulating paint to the booths was installed. Hydraulic pumps force paint from 50-gal. tanks through the lines so that painters have a steady supply on hand at any time they pick up a spray gun.



RENOVATED—Painters Daniel Cervantes, Bob Cowan, George Adams spray components in new 60-ft. spray booth in Convair Lindbergh Field's paint shop, now completely renovated.



HIGH RIDING—Solfrid Nilson, beginning skier in CRA Ski Club, makes like a professional as she balances on shoulders of Larry Davis skiing behind CRA boat, "Sweet Sixteen," on Mission Bay. Husband Matt Nilson of Convair advanced programs shot photo from boat.

Six Bridge Members Place in Tourney

Six CRA Bridge Club members placed in La Jolla and Beach Summer Sectional play.

Billie Evans was first in Women's Pairs section and third overall, and Wayne Evans took two sectional wins in side games. Commissioner Bob Rustad and wife, Mitzi, won a sectional in a side game and Tony Miller paired with Jim Stephenson to take a third overall in a side game.

Winners in recent CRA play were: July 8—North-South, Tony Miller and Wayne Evans; East-West, Joan and Fred Nickerson. July 24 — North-South, Sophia and Dave Krause; East-West, Mitzi and Bob Rustad. July 31 — North-South, Pauline and Bill Hatherly; East-West, John Gimbel and Herb Eger.

Mr. and Mrs. Ralph Emerson and Mr. and Mrs. Mits Ishihara won North-South and East-West honors, respectively, at CRA Bridge Club's dinner party Aug. 13 in the Garden Room of the MCRD Officers' Club. Forty-three members made up 10 tables of bridge. In other CRA bridge play this month, Mr. and Mrs. David Krause won North-South, and Sally Ishihara and John Seemann, East-West on Aug. 5; Tony Miller and Don Leistico, North-South, and Mr. and Mrs. David Borkenhagen, East-West, on Aug. 12.

NMA Golf Tourney Set For Weekend

Last-minute entries for this weekend's NMA Western Division golf tourney will be taken, if there are any spots left open, Gerry Cox, general chairman, said.

The 36-hole handicap event, sponsored by the San Diego Council, will be Aug. 27 and 28 at Cottonwood both days. Entry fee for Convair Management Club members is $13.

Call Cox at ext. 1650, Lindbergh Field, for entry information.

BARGAIN TICKET COUPON OFFERED

Coupons for reduced price reserved seat tickets for showing of "The Blue Max" at the Capri Theatre are available at all employe service outlets. Ticket price with the coupon, which is not valid on Friday or Saturday evenings, is $1.60.

CRA Facilities Attract 13,000 Employes, Families in July

Convair's recreational facilities were put to full use last month, J. K. Field, chief of employe services, reported at the last Convair Recreation Association Employes' Council meeting.

By accurate count, close to 13,000 people enjoyed facilities at Kearny Mesa and Pine Crest in July. Of these, 5,150 employes and their families visited the CRA Missile Park and another 3,489 participated in activities in CRA Clubhouse. General Dynamics campers and picnickers traveling to Pine Crest, CRA mountain resort near Julian, numbered 4,316. Fourth of July weekend drew 1,189.

Pine Crest had its biggest day of the summer Aug. 13 with 141 campers and an additional 230 picnickers, including 200 from electronics groups. This brought the total number of visitors for the year to 11,985.

The CRA Travelers trailer club spent last weekend at the resort and about 500 Convair people are expected for the three-day Labor Day weekend next month.

Pecan Park, picnic grounds east of El Cajon, is filled almost every weekend by outside groups on a rental basis. However, hundreds of Convair Management Club people gathered there for their annual family picnic early this month.

Field especially commended the people maintaining the recreation areas for the fine condition of all CRA facilities.

Novice Sq. Dance Classes Slated

General Dynamics folk are invited to learn to "allemand left and do-si-do" at CRA-sponsored square dance classes for beginners at 8 p.m. Tuesdays beginning Sept. 13 in CRA Clubhouse at Kearny Mesa.

Approximately 20 to 22 weeks of instruction will be given by Dottie and Van Vander Walker, callers. Registration will be accepted during the first three sessions.

Commissioner Marty Stutz said the class will be designed for those who have never square danced, although "brush-up'ers" also are welcome. "The more the merrier, so set aside Tuesday nights and bring your friends," he said.

Intermediate square dancers are invited to join the square dance club for its regular sessions from 8 to 10 p.m. each Thursday at the Clubhouse.

Call Stutz at KM ext. 1441, Roland Hagar at KM ext. 1954, Merritt Strickland at LF ext. 634, or Lee Lemen at General Atomic ext. 556.

Las Vegas Travelers Must Sign By Sept. 2

A CRA trip to Las Vegas is set for the weekend of Sept. 9-11 for all General Dynamics people who sign by Sept. 2.

Two tours, one by air and another by de luxe bus, will be run if enough sign. Eighty-two reservations are available. Package price for transportation, two nights double occupancy at either the Tropicana or Riviera Hotel, is $49 by air and $28 by bus. Money and reservations must be into CRA Clubhouse headquarters, or employe services at Lindbergh Field, Electronics, and Stromberg-Carlson by the deadline date next week.

A weekend trip to Lake Tahoe will be arranged later this fall, if enough GD people indicate that they wish to visit the vacation spot. Dates will be Nov. 4-6. Price would be $72 for round trip by air, two nights at the Sahara Hotel. Ten dollars would be added for Saturday night dinner show and Sunday morning breakfast.

Reservations must be in no later than Oct. 1. Call CRA office, ext. 1111, KM.

GOLF SCHEDULED FOR CORONADO

Starting times for the September CRA golf tourney will be assigned from tomorrow (Aug. 25) until Sept. 2 through ext. 1111 KM. The monthly CRA links event will be Saturday and Sunday, Sept. 10 and 11, at Coronado course.

CRA Taking Entries For Winter Bowling

Entries are still being accepted for CRA winter bowling leagues which will start rolling early next month.

Names and phone numbers may be left at employe services outlets or the CRA Clubhouse, ext. 1111 KM, until Sept. 3.

For details call one of the bowling commissioners: Forest Erwin, ext. 2884 KM; Mike Brooks, ext. 2850 KM; or Jim Hayman, home phone 466-1262.

CRA Calendar

(For information on CRA activities call CRA Headquarters, Kearny Mesa, ext. 1111. Deadline for copy for the next issue of GD/NEWS is Aug. 31. Call ext. 3322 KM or 1071 LF.)

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BADMINTON — Play Mondays, 7-10 p.m., Federal Bldg., Balboa Park.

BALLROOM DANCING—New instruction classes start Sept. 19. Call Royce Riggan, ext. 1018 LF.

BONAIR FLYERS — Meeting Tuesday, Sept. 6, 7:30 p.m., CRA Clubhouse.

BOWLING — Sign by Sept. 3 for winter leagues through employe services or CRA Clubhouse.

BRIDGE — Play every Friday, 7:30 p.m., CRA Clubhouse.

CERAMICS — Meetings Tuesdays and Thursdays, 7-10 p.m., CRA Clubhouse.

CHESS — Play Wednesdays, 7:30 p.m., CRA Clubhouse.

FENCING — Workouts and instruction Fridays, 7:30 - 10:30 p.m., YWCA, 10th & C Sts.

GARDEN CLUB — Meeting Sept. 7, 7:30 p.m. Floral Association Bldg.

GOLF — Sign-ups taken to Sept. 2 for CRA tourney, Sept. 10-11, Coronado. Call ext. 1111.

ICE SKATING — Sign by Sept. 16 for annual Big Bear weekend, Sept. 23-25. Call Bud Davies, ext. 2751, KM. GD skate nights Thursdays, 6:15-7:45 p.m., Mission Valley Ice Arena.

PISTOL CLUB — Club shoot 9:15 a.m. Aug. 28, SD Police Range, Federal Blvd. and Home Ave.

RADIO CLUB — Meeting Sept. 1, 7:30 p.m., CRA Clubhouse.

RAILROAD CLUB — Work sessions Tuesdays, 5-7 p.m., and Saturday mornings at CRA Missile Park.

SCULPTURE — Workshop sessions Mondays, 7:30-10:30 p.m., CRA Clubhouse.

SKI CLUB — Water skiing Sunday mornings, 8 a.m. to noon, off Crown Point; Wednesdays after work off Santa Clara Point. Call Joe Harris, 284-0278. Meeting Sept. 6, 8 p.m., Catamaran Hotel.

SQUARE DANCING — New beginners class starts Sept. 13, 8 p.m., CRA Clubhouse. Sign at first three sessions, Sept. 13-20-27. Intermediate square dancing Thursdays, 8-10 p.m.

TENNIS — New beginners course starts Sept. 13, 5 p.m., CRA courts.

TOASTMASTERS — Convair Toastmasters No. 3745 meet Wednesdays, 4:15 p.m.; Dynamics Toastmasters No. 457 meet Thursdays, 5:15 p.m., CRA Clubhouse.

TOASTMISTRESS CLUB — Serra Mesa Club meets first and third Mondays, 7:30 p.m., CRA Clubhouse.



SPACE-AGE INFORMATION — C. F. McMenamy of Convair, second from left, discusses materials for use by schools with Dr. John Huffman of San Diego County Schools, left, James Crooks of Electronics-SD and Robert M. Williams of Convair, right.

Information Kits For School Use Give Latest Science Developments

General Dynamics employes on San Diego's Community Educational Resources Committee are helping provide information on new scientific developments for city and county school students up to 10 years before such information will be available in textbooks.

The committee has produced information kits in 25 different fields of study including botany, oceanography, solid state physics and planned space travel.

School systems in a 37-state "compact" plan to use the brochures, filmstrips, recordings, photographs and other teaching aids.

C. F. McMenamy of Convair Dept. 566-3, CER chairman, is planning to brief officials in Washington, D.C. on this beneficial "San Diego idea."

CER was formed and produced its first kit of materials on space science after Dr. Cecil Hardesty, county schools director, wrote Convair and other local industrial firms in 1959 asking for assistance in supplementing available textbook materials.

The San Diego Industry-Education Council, also headed by McMenamy, and the California Industry-Education Council, headed by C. F. Horne, Pomona division president, provide "experts" to aid CER in gathering information.

Before CER produced and began distribution of thousands of copies of its first space science kit and a teacher's brochure on "How to Teach Children about Space Science," committee members reviewed 35 existing textbooks. Although it was two years after Sputnik, only one mentioned a rocket engine and it said no engine had been developed that could launch a vehicle into space.

Funds for producing the kits are provided through the National Defense Education Act and the kits are sold to school districts at cost.

Convair, General Atomic, Fort Worth and Pomona divisions all assisted in production of a recent kit on "Modern Modes of Transportation."

James Crooks, an Electronics-SD scientist and CER committee member, conducted the first of more than 30 seminars to familiarize San Diego area teachers with the kits.

Dr. Edward Creutz, vice president-research and development, and other General Atomic staff members presented the last such seminar, attended by more than 250 teachers on "The New Kit—Peaceful Use of Atomic Energy."

Robert M. Williams of Convair Dept. 581-1 is CER co-chairman and heads up an IEC applied mathematics program for high school teachers. Dr. Neil Lamb of Convair Dept. 581-3 is evaluating and studying ways for "re-dimensioning" high school curriculum. Ray Blair, assistant to the Convair general manager, helped arrange initial Convair assistance for CER activities.

McMenamy was honored this year as "California's Outstanding Lay Citizen" by the Council of California Vocational Associations.

Electronics Builds New Airborne Radar

An order for a new type of airborne radar has been received by Electronics division from the United Kingdom government. The equipment will be installed in Royal Air Force aircraft.

The use of this new type radar permits far greater control of aircraft under certain flying conditions than has been possible to date.

Electronics was selected as the supplier because of its development work in this field.

Pomona Division Man to Serve Year With 'Plans For Progress'

C. E. Puckett of Pomona division has been named as a member of the administrative staff of the Plans for Progress Program in Washington, D. C. Algie A. Hendrix, Corporate vice president, announced that Puckett will assume his new duties Sept. 12.



C. E. Puckett

Puckett will be a full-time staff executive on loan from General Dynamics serving on the Plans for Progress administrative staff for a period of 13 months.

Plans for Progress is a voluntary effort by the leadership in American business and industry to participate aggressively in the promotion and implementation of equal employment opportunity. The idea was — and is — for Plans for Progress companies to go beyond the letter of equal opportunity laws and executive orders by carrying out affirmative action policies and projects to end discrimination and increase job opportunities for minorities.

Member-company executives serve on an Advisory Council which gives direction to the program. The administrative staff in Washington executes the programs and projects and carries out liaison with the Equal Employment Opportunity Commission, the Labor Department, the Office of Economic Opportunity and other federal agencies involved in equal employment opportunity programs.

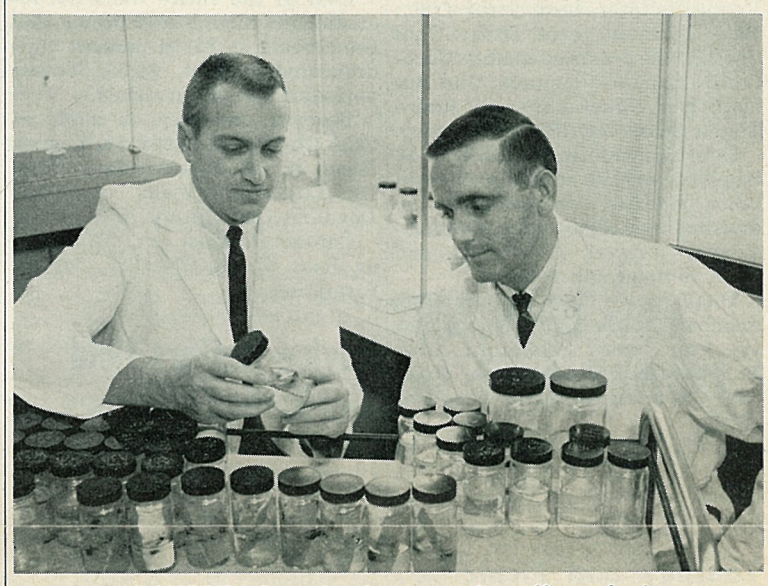
As a member of the administrative staff, Puckett will serve as the Plans for Progress coordinator of community relations programs.

Puckett started work in industrial relations at Pomona in 1960 as a supervisor of investigations. He was named supervisor of security and investigations in 1962 and manager of educational services last March. A native of Michigan, he took his undergraduate work at Michigan State University and Northern Michigan University and did graduate studies at University of Michigan. He served with the Federal Bureau of Investigation for nine years before joining General Dynamics.

Hurlich Appointed To Advisory Board

Abraham Hurlich, Convair manager of materials and processes, has been appointed to a four year term on the Materials Advisory Board of the National Academy of Sciences.

The board serves as an advisory group for the Director of Defense Research and Engineering of the Department of Defense. It also has provided technical direction on major research and development projects including the joint Army, Navy and Air Force programs on titanium and refractory metal alloy sheet for aerospace vehicle applications.



BUGS AT WORK—Investigating corrosive effect of micro-organisms on various metal samples are Dr. H. G. Hedrick, left, staff scientist, and M. G. Crum, research scientist, in Applied Science Laboratories, Fort Worth division.

Corrosion by Bugs

Bacteria Attacks on Metals Studied in Fort Worth Lab

Take metal strips of magnesium, copper and aluminum and dip them in a solution teeming with bacteria — micro-organisms that can't be seen by the human eye.

After 150 days in solution, the aluminum and copper strips are relatively undamaged; the magnesium sample shows extreme corrosion.

Conclusion: bacteria attack some metals more readily than others.

"We're attempting to determine precisely which organisms attack which metals—and to what extent," says Dr. H. G. Hedrick, staff scientist in Fort Worth division's Applied Science Laboratories.

The above experiment is one of many conducted in the Fort Worth laboratory.

"Much work needs to be done in the area of basic mechanisms in studying microbiological corrosion of aluminum alloys and other metals," Dr. Hedrick said. "One of our prime goals is to help ascertain the most likely microbiological-corrosion-resistant metal alloys for tomorrow's faster-moving spacecraft.

Magnesium, obviously, wouldn't fill the bill!

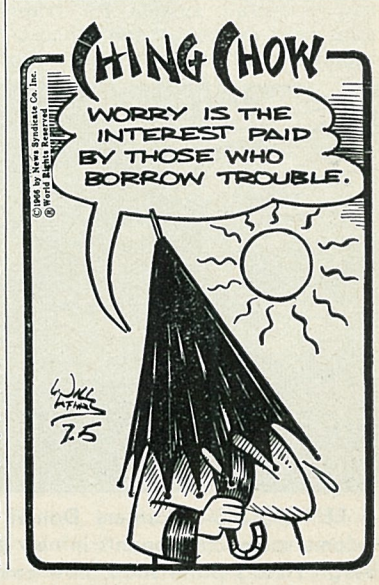
"Bacteria, like man, need certain nutrients and metallic elements for survival," Dr. Hedrick said. "Some metals—like magnesium and zinc—contribute to this requirement; others—like copper and pure aluminum—simply do not."

Precisely which of the myriad of bacteria will attack what metals must be determined through long experimentation.

"In addition to composition of aluminum alloys," Dr. Hedrick continued, "we've found that other factors govern the extent of corrosion: growth rate of the organism; mineral composition of water; organic composition of the suspending medium.

"Another factor we hope to explore more fully is the effect of a static vs. dynamic environment in influencing microbiological corrosion."

Dr. Hedrick and two research scientists—R. J. Reynolds and M. G. Crum—recently presented papers covering various aspects of the microbiological degradation of aircraft materials at the Society for Industrial Microbiology Conference at the University of Maryland.



All-Weather Landing System Installed For FAA's 880-M.

Federal Aviation Agency's Convair 880-M is back at the San Diego division for installation of an all-weather landing system.

Convair Service Center is installing the automatic flight control system designed by Astronics Division of Lear-Seigler Inc., prime contractor to FAA. Convair division developed installation provisions for compatible mating of the system and the aircraft, and is providing material and fabrication of hardware. Convair technical publications is developing handbooks and technical manuals in support of the system.

Both Convair and the Service Center will assist with ground testing after installation is completed in late September. The jet transport then will go to the National Aeronautics Flight Evaluation Center at Atlantic City, N. J., for flight tests.

The Convair task is coordinated by E. F. Kotnik of the 880/990 project office, with W. C. Keefer, Convair senior design engineer, responsible for integration of the electronic system design, and Hans Stocker, senior design engineer, responsible for integration of the control system design. Convair service parts is administering the contract.

DOD Deputy Briefed On Convair's Plans

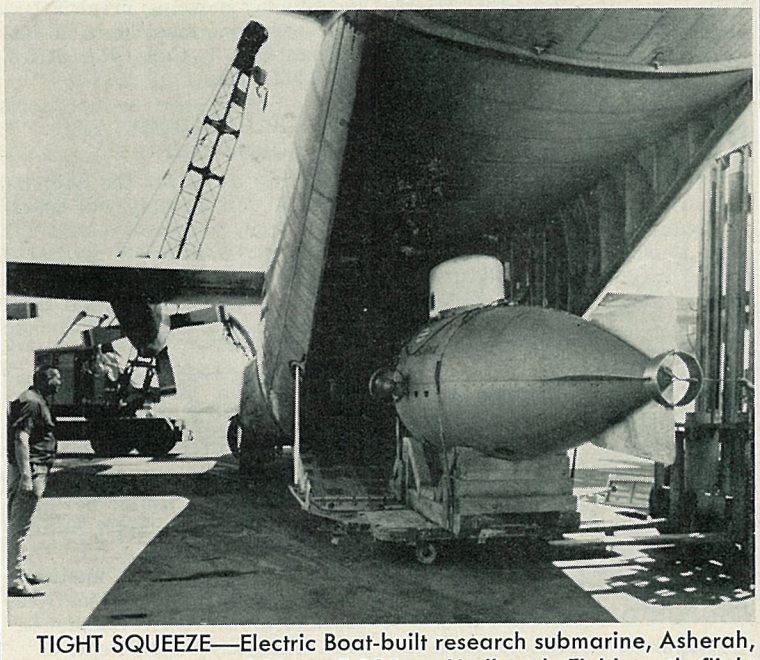
R. E. Rosenthal, deputy for offensive strategic forces for the Office of the Director of Defense Research and Engineering of the Department of Defense, visited Convair's KM plant Aug. 10 for a briefing on future program plans and capabilities.

C. S. Ames, vice president-military space programs, served as host.

Correct mail zone number speeds up delivery.

Holiday Will Create Three-Day Weekend

Labor Day weekend will be vacation time for most General Dynamics people. The legal holiday on Monday (Sept. 5) will stretch the weekend to three days. Security and maintenance employes who will have to stay on the job will be notified by their supervisors.



TIGHT SQUEEZE—Electric Boat-built research submarine, Asherah, is pulled into jaws of Navy C-130 at Lindbergh Field north flight gate by Convair transportation (John Speed, Convair transportation general foreman, directs loading at far left) early this month en route to Caribbean for Navy salvage operation. EB's Marine Technology Center operating crew accompanying submarine are Louis Fead, Gordon Cooke, John Nowicki.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

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Convair C-141 Program Nears Fifth Birthday

Convair this month rounds out five years on the C-141 program under which the division is building tail sections for the Air Force jet cargo plane under a subcontract from Lockheed-Georgia Co., prime contractor.

It was just five years ago — the early part of October, 1961 — that Convair received its first order for five of the huge empennages for development testing.

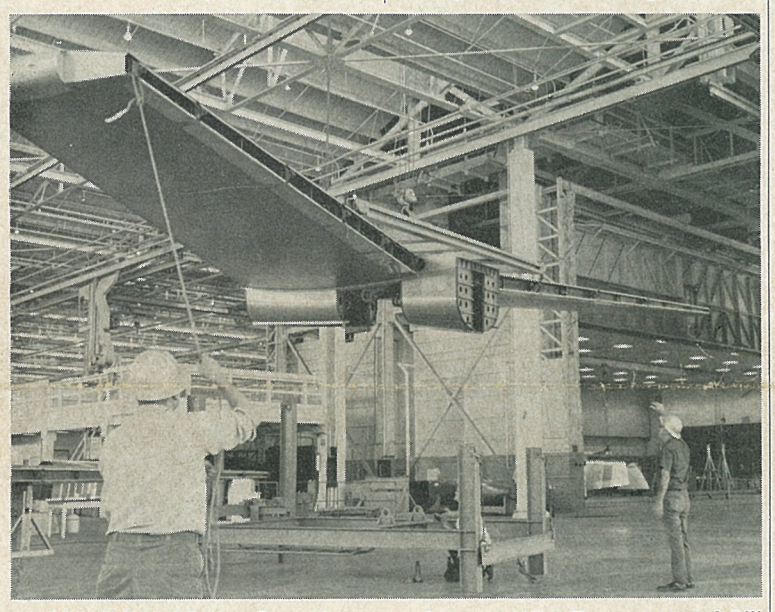
Now, five years later, the division expected to ship out the 179th tail section last week. Empennage components are sent cross-country by specially-built Southern Pacific Railroad flat cars to Lockheed-Georgia's Marietta, Ga., plant where the planes are assembled.

Altogether, Convair has received follow-on orders for 287 empennages with production work expected to extend into late 1967.

"This has been, and continues to be, an exceptionally smooth program from all standpoints," James A. Brown, C-141 program manager, said. Brown has headed the C-141 program since this spring when he succeeded R. W. Miller, now program manager for the C-5 transport. Both report to J. M. Adamson, Lockheed subcontracts manager, who guided the C-141 program from its inception until the early part of 1964 as C-141 program manager. He was then placed in overall charge of all Lockheed subcontract work, including both C-5 and C-141 programs.

"Production is on schedule, due to that most important factor of all—no shortages, either material or parts," Brown continued. "We look forward to at least a year more of satisfactory progress before the military version of the C-141 is phased out."

(Continued on Page 2)



OFF C-141 LINE—Convair crane riggers, Mike Escareno and Bill Hill, position 179th C-141 horizontal stabilizer in turning fixture as it comes off production line in Lindbergh Field plant's Bldg. 2. No. 179 empennage was scheduled for shipment last week to Lockheed-Georgia Co. as program nears fifth anniversary.

Idea Cutting Computer Time Earns Statistical Clerk $1,078

An Employe Suggestion award check for $1,078 — the largest for a Convair division employe this year — recently was presented to Mrs. Grace M. Knutson, a statistical clerk in Dept. 194-0.

Mrs. Knutson's suggestion, expected to save the division 10 times the amount of the award, has eliminated computer printout of inactive and no-longer-required budget codes that were being printed automatically each month.

Printing of these from the master tape will be done in the future only as required.

Mrs. Knutson's suggestion will save more than 18 hours of computer time and 45 boxes of computer paper and eliminate more than 40 manhours a month.

John D. Milling, division controller, presented the check to Mrs. Knutson and urged other members of the department always to be alert for cost-saving ideas.

"This is the kind of thing we all should be doing all the time," he said.

Mrs. Knutson said the award would be used to pay for medical expenses incurred for her husband, a heart patient.



SHARE OF SAVING—Employe Suggestion check for $1,078 is presented by John D. Milling, Convair division controller, to Mrs. Grace M. Knutson of Dept. 194-0.

Atlas Poised For Gemini Shot at Cape

Convair's Atlas SLV-3 No. 5306 stands poised on Complex 14 at the Eastern Test Range ready to push the Gemini 11 Agena target vehicle into a 161-nautical-mile orbit.

Astronauts Cdr. Charles "Pete" Conrad and LCdr. Richard Gordon are slated for liftoff 97 minutes later atop a modified Titan 2 for first-orbit rendezvous with the target vehicle.

Convair division had a "tiger team" from Kearny Mesa at the Cape last week going over the Atlas for "extra assurance" that it is in perfect flight readiness.

E. R. McFadden, Convair program manager for Gemini target vehicle, was in charge of the team.

Others and their areas of responsibility were Richard Nicholson, quality assurance; Howard Davis, hydraulics; Arthur Colvin, pneumatics; Clark Hay, electrical; Duane Quinn, flight controls; David Stein, propulsion, and James Fithian, propellant utilization. Samuel Merkowitz is to provide design support for the launch.

Jack Miller is launch conductor and Orion Reed is operations director for the launch, next to the last in the Gemini series.

Joint flight acceptance com-

(Continued on Page 2)

VOTE REGISTRATION SERVICE PLANNED

Convair division has arranged with the San Diego County Registrar of Voters office to have deputy registrars at Kearny Mesa, Lindbergh Field and Air Force Plant 19 next week (Sept. 12 through 14).

This will give employes at the three installations an opportunity to register or reregister if needed in order to vote in the Nov. 8 general election.

Deputy registrars will be present from 11 a.m. to 1 p.m. at the following locations on the dates indicated:

Kearny Mesa — East end Bldg. 3, Sept. 12-14; east side main cafeteria, Sept. 12-14, Bldg. 33 north side patio area, Sept. 12; south end Bldg. 26, Sept. 13; Bldg. 2 at base of ramp, Sept. 14.

Lindbergh Field — South cafeteria entrance, Sept. 12-14; behind Bldg. 1 near lunch wagon, Sept. 12; Bldg. 5 overpass entrance,

(Continued on Page 2)

Buoy Gathers Data On Hurricane Waves

"Bravo," Convair's oceanographic data-gathering buoy moored off Bermuda, monitored ocean surface waves radiating from Hurricane Faith as it blew north over the Atlantic last week.

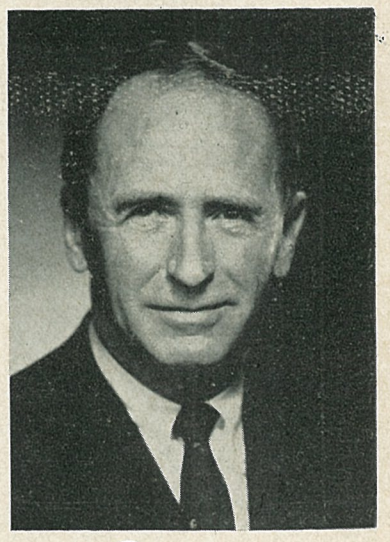
Robert Devereux, program manager, said a close eye was being kept on the storm's progress and added "We'd like to see the hurricane come in right over the buoy to give us a real rough weather test."

The buoy was developed for the Office of Naval Research.

Roger Lewis Urges Bond Buying Boost

Within the next few days each General Dynamics employe who is not already purchasing U. S. Savings Bonds directly through payroll deduction will be approached and encouraged to sign up.

I am fully aware that a great number of General Dynamics employes who are not regularly investing in the U. S. Bond deduction program are purchasing Bonds indirectly through the employe Savings and Stock Investment Plans. However, the Treasury Department, the Department of Defense and NASA are all very anxious to see each employe continue to participate in the E-Bond program.



President Johnson has made special appeals, particularly to Government employes and those of defense contractors. We are defense and space contractors and the percentage of our employe participation will be compared with that of others. I am anxious that General Dynamics divisions make a good showing.

I encourage you to sign up for your Country's good as well as for your own. Sign for whatever amount fits your personal budget — even though it is the minimum — but sign.

Roger Lewis
President

★ ★ ★

Bond Solicitation Set For Next Week

General Dynamics divisions, as well as Corporate Headquarters, next week will conduct a Corporation-wide solicitation in order to boost the percentage of employes buying U. S. Savings Bonds by payroll deduction.

All employes not now participating will be asked to sign up, even if only for the minimum of 50 cents a week.

At most divisions, tab cards will be issued to all non-buyers. Only a signature is necessary in order to start the payroll deduction.

"Our primary aim is to encourage everyone to buy Savings Bonds regularly by payroll deduction," Algie A. Hendrix, Corporate vice president, explained.

"For this reason we have set a low minimum, so that even those investing heavily in other savings plans can take part."

Savings Bonds have many advantages, including the increased interest rate (see page 3).

They are "indestructable" in that the Government will replace them if lost, stolen or destroyed.

They carry real tax benefits, in that interest income need not be declared until the bonds are cashed in—which can be postponed until years of retirement when the individual is in a lower tax bracket.

And they grow steadily in value.

The following table shows by years of age, in case of a child for whose education you are planning—or age of bond in case you are planning for retirement—just how the values grow . . . value at age 18 through monthly investment of:

★ ★ ★

Sign up For Bond Buying By Deduction

★ ★ ★

Child Age	$ 18.75	$ 37.50	$ 56.25	$ 75.00
6 mos.	5,480	10,960	16,762	21,920
2 years	4,857	9,713	14,570	19,426
4 years	4,079	8,159	12,238	16,318
6 years	3,359	6,717	10,076	13,435
8 years	2,689	5,378	8,067	10,756
10 years	2,066	4,131	6,197	8,263
12 years	1,486	2,973	4,459	5,946

You Can Buy U. S. Savings Bonds Regularly By Investing as Little as 50 Cents a Week

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between Sept. 1 and Sept. 15.

Thirty-year: Dept. 031-0, J. B. Stelling; Dept. 149-7, R. T. Scott; Dept. 195-0, J. M. Jones; Dept. 401-4, H. A. Daw; Dept. 401-6, C. J. Spirz; Dept. 818-1, P. F. Grijalva; Dept. 987-0, S. M. Shepard.

Twenty-five-year: Dept. 005-0, F. G. Brown; Dept. 015-0, K. W. Camp; Dept. 031-1, F. J. Stolte; Dept. 041-0, R. B. Allen, C. R. Cox, F. J. Hull; Dept. 191-1, A. W. Lutz; Dept. 193-3, P. T. Brass, R. C. Firestine, W. J. Taylor; Dept. 300-3, C. D. Carpenter, E. H. Horstman; Dept. 401-4, A. Berg, A. F. Koritnik; Dept. 420-6, J. J. Severy; Dept. 420-8, R. T. Mulroy; Dept. 423-0, G. Tahan; Dept. 553-3, W. C. Geopfarth; Dept. 563-0, J. M. Lawyer; Dept. 756-0, M. G. Osborn; Dept. 833-2, B. M. Higgins; Dept. 978-3, K. E. Harris, H. F. Lee.

Twenty-year: Dept. 031-1, R. W. Masis; Dept. 059-3, E. S. Baumann; Dept. 957-0, C. J. Dunphy; Dept. 978-3, C. W. Graser.

Fifteen-year: Dept. 002-0, E. L. Chapman; Dept. 101-6, M. S. Cleveland; Dept. 101-7, T. M. Gookin; Dept. 123-0, A. B. Vigneault; Dept. 130-1, G. L. Finley; Dept. 143-4, C. E. Giesken; Dept. 149-4, E. F. Murphy; Dept. 149-6, A. M. Street; Dept. 193-3, P. R. Merritt; Dept. 250-3, N. D. McFarland; Dept. 400-2, J. R. Crothers; Dept. 400-5, C. R. Adams Jr.; Dept. 401-4, R. F. Jones; Dept. 401-5, H. P. Aguilar, C. A. Martinez; Dept. 454-0, D. G. Oliver; Dept. 511-4, R. W. Knelange Jr.; Dept. 562-2, M. O. Starr; Dept. 584-3, W. R. Ginsky; Dept. 780-2, V. M. Salazar; Dept. 816-4, M. A. Grove; Dept. 819-0, R. M. Nicholas; Dept. 951-8, A. Segal.

Ten-year: Dept. 041-0, S. Adamov, H. R. Heinecke; Dept. 110-0, K. D. Ostermeyer; Dept. 113-0, N. D. Jones; Dept. 130-1, T. D. Westbrook; Dept. 142-1, A. A. Bentley; Dept. 143-5, R. J. Browning; Dent. 149-2, W. E. Tandy; Dept. 170-1, L. H. Hansen; Dent. 191-0, D. J. Gibson; Dept. 201-0, V. Gann Jr.; Dept. 250-2, L. B. Hampton; Dept. 300-0, J. B. Morgan; Dept. 300-2, H. G. Thatcher; Dept. 460-0, R. L. Scott, M. J. Young; Dept. 511-4, H. D. Smith; Dept. 524-3, P. R. Garvie; Dept. 532-1, N. Saslove; Dept. 544-4, H. A. Meyers; Dept. 565-1, C. S. Lang; Dept. 565-2, R. L. Stillwell.

Dept. 572-1, H. H. Stier; Dept. 574-6, G. H. Solheid; Dept. 578-3, J. A. Parsons; Dept. 583-1, R. D. Aldridge; Dept. 591-0, D. W. Riordan; Dept. 595-0, R. I. Hagar; Dept. 596-0, J. T. Neu; Dept. 731-0, A. Lorenzo; Dept. 744-0, S. L. Myers; Dept. 756-0, W. S. Torgersen; Dept. 780-1, K. E. Evans; Dept. 780-3, W. E. Greenway, G. A. McCrerey; Dept. 816-4, L. H. Barber Jr.; Dept. 832-3, E. J. Hooton; Dept. 833-2, C. G. Knight Jr.; Dept. 845-3, A. F. Magargal; Dept. 845-5, E. R. Sabin; Dept. 850-1, E. E. Stetzel; Dept. 950-7, D. A. Munizza; Dept. 951-6, N. E. Vinson; Dept. 953-1, G. Pastor; Dept. 957-0, W. L. Botts, M. G. Witkovic; Dept. 957-2, C. N. Phillips; Dept. 962-2, L. E. Siden; Dept. 962-4, D. H. Oliver; Dept. 966-4, B. D. Balanag; Dept. 973-1, P. F. Jackson, N. W. Mielke; Dept. 979-1, Q. E. Gilmore, S. J. Rodriquez Jr.; Dept. 985-1, W. D. Jenness, T. Yamatani; Dept. 985-3, I. M. Swaim.

ELECTRONICS

Twenty-five-year: Dept. 75490, W. R. Mandel.

Fifteen-year: Dept. 40750, R. L. Saunders.

Ten-year: Dept. 40730, G. R. Taylor; Dept. 68670, W. P. Hatherley; Dept. 69840, E. L. Rope.

Retirements

CONVAIR

BERGQUAM — Norval K., Dept. 526-8. Seniority date May 25, 1961, retired Aug. 9.

BERNSTONE — Martin M., Dept. 143. Seniority date July 28, 1959, retired Aug. 4.

CHENOWETH — Robert W., Dept. 756-0. Seniority date Nov. 9, 1956, retired June 29.

CONARD — Albert B., Dept. 526-6. Seniority date Aug. 14, 1950, retired July 30.

DAWE—Veva A., Dept. 832-4. Seniority date July 10, 1958, retired April 16.

GASKO — John J., Dept. 571-3. Seniority date July 10, 1958, retired Aug. 5.

GLADFELTER — Allan M., Dept. 420-4. Seniority date Oct. 8, 1956, retired April 16.

GRIDER — Cordis C., Dept. 143-1. Seniority date Feb. 2, 1956, retired Aug. 15.

HASLANGER — Dave A., Dept. 460-0. Seniority date Sept. 10, 1953, retired Jan. 16.

HERMANSON — Grace D., Dept. 140. Seniority date Aug. 13, 1958, retired Aug. 14.

IMHOFF — Robert, Dept. 015-0. Seniority date April 12, 1951, retired Aug. 16.

JARVIS — Frank E., Dept. 731. Seniority date Oct. 7, 1953, retired Aug. 12.

KENNEDY — John E., Dept. 130-1. Seniority date March 24, 1953, retired July 10.

LEWIS — Dorothy S., Dept. 733-0. Seniority date Feb. 12, 1960, retired April 7.

LUCKIE — Leo L., Dept. 733-0. Seniority date Sept. 9, 1958, retired Jan. 16.

McNALLY — Val J., Dept. 756-0. Seniority date Oct. 23, 1953, retired April 16.

MOHR — Charles A., Dept. 6. Seniority date Nov. 30, 1936, retired May 28.

VERBY — Howard, Dept. 421-1. Seniority date May 3, 1954, retired July 17.

General Dynamics News

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Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

Awards

CONVAIR

Employe Suggestion Awards approved for the week ending Aug. 12.

Dept. 002, H. H. Frein; Dept. 015, A. L. Reiter, E. D. Woods; Dept. 141, J. L. Eiland; Dept. 143, J. H. Brewer; Dept. 194, G. M. Knutson; Dept. 250, B. O. Green, J. S. Poschman; Dept. 454, R. A. Golem; Dept. 756, R. W. Rabell; Dept. 759, P. P. Standley; Dept. 780, F. L. Bates; Dept. 833, L. L. Bender; Dept. 835, K. S. Kelly; Dept. 957, J. A. Madden; Dept. 962, T. G. Becea; Dept. 972, S. M. Elson; Dept. 987, R. A. Deuschman (two awards).

Employe Suggestion awards approved for the week ending Aug. 19.

Dept. 002, R. C. Beezley; Dept. 015, F. J. Steglic; Dept. 019, V. C. Breit; Dept. 143, D. S. White; Dept. 149, S. Witkoff; Dept. 731, G. W. Eberle, J. L. Obermuller; Dept. 833, R. A. Gilstrap; Dept. 835, E. E. Johnson; Dept. 988, R. C. Zuranski.

Invention Disclosures

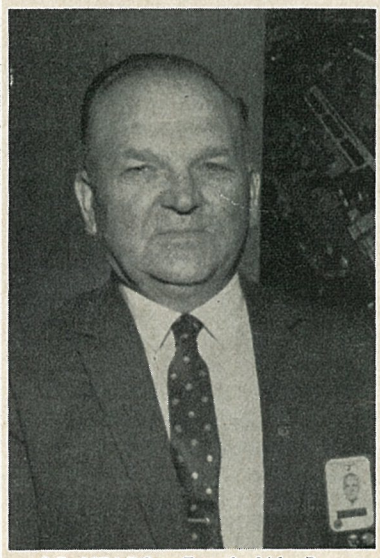
CONVAIR

BROWN — K. R., Dept. 988-1. Deep Sea Lifting Device.

EGLI — Walter, Dept. 581-5. Insulation for Cryogenic Liquid Storage Tanks and Zero-Gravity Vent System.

McCORMICK — D. J., Dept. 966-3, and F. D. POSTULA, Dept. 584-2. High Speed Vehicle Control System.

RAVENSCROFT — W. G., Dept. 532-1. Gas Tight Rotary Drive Mechanism.



35 YEARS—Frank W. Bornemann, Dept. 149-4, last month received his service emblem marking 35 years with Convair from Division General Manager Jack L. Bowers.

In-Plant Training

ORIENTATION

NEW EMPLOYES—Educational services staff. Lindbergh Field, ext. 491, Bldg. 14 auditorium, Tuesday, Sept. 13, 8 a.m. Kearny Mesa, ext. 1931, Bldg. 17, Room 1, Monday, Sept. 12, 8 a.m.

PROFESSIONAL/TECHNICAL

RELIABLE ELECTRICAL CONNECTIONS — Educational services staff. For further information and quota call ext. 1931, Kearny Mesa.

PRODUCT IMPROVEMENT — Kearny Mesa Manufacturing Conference Room, Bldg. 5, Dept. 731. Sept. 12-15 and Sept. 19-22, 4:30-5:30 p.m. Enrollment closed. For information call Will Weidenfeller, ext. 1931, Kearny Mesa.

PROGRAMMED SELF-STUDY — A limited number of programmed texts in accounting, computer language, English, shorthand, electronics, electricity, instrumentation, management, mathematics, machine programming, statistics, and value engineering are available in the educational services office, Bldg. 17, Kearny Mesa. These may be checked out for home study. Office hours are from 8 a.m. to 5 p.m., ext. 1931 KM.

AFTER HOURS CLASSES
San Diego State College Extension

FALL SEMESTER — Classes begin the week of Sept. 19 with registration on first class meeting night. All classes will be in Bldg. 17, Kearny Mesa. Courses are: fluid mechanics, Wednesdays, 5-7:30 p.m., Room 1; structural analysis I, Tuesdays, 5-7 p.m., Room 1; AISC manual design usage, Mondays, 5-7 p.m., Room 8. For information call Dick Forrest, ext. 1931 KM.

Personals

CONVAIR

We wish to express sincere appreciation to our Convair friends for their cards and other expressions of sympathy following the death of our husband and father, A. P. Sutton.

Bertha Sutton and daughters.

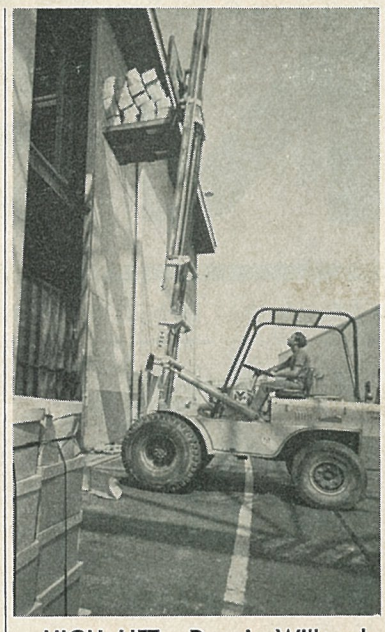
Vehicles To Be Sold To Highest Bidders

Eight Ford and Chevrolet vehicles will be sold to the highest bidders on Sept. 15.

They include four 1961 ¾-ton Ford pickups; a 1956 ½-ton Ford pickup; one Ford Galaxie 500 sedan, 1965 model; one 1965 Chevrolet Impala sedan; and one Chevrolet Bel Air sedan, 1961 model.

They may be inspected at the Kearny Mesa salvage yard from 8 a.m. until 3 p.m., Mondays through Fridays, through Sept. 14. Bids will be accepted until deadline, 1:30 p.m., the next day.

Bid forms and information are available at both Kearny Mesa and Lindbergh Field salvage yards. Extensions are 1873 at KM or 754, LF.



HIGH LIFT—Dennis Willoughby of Dean Van Lines maneuvers skid-load of cartons containing Convair permanent records to second floor of Lindbergh Field's Bldg. 8 where division archives will be located.

Archives Shift To LF Bldg. 8

Convair permanent records, stored in the division's archives, have been moved to the second floor of Bldg. 8 at Lindbergh Field plant upon expiration this week of the lease of the Hazard Bldg. on Gaines St.

Records were maintained in the Hazard Bldg. the last 10 years.

Some 30,000 cartons, and the 574 five-shelf racks that hold them, were trucked from the Hazard Bldg. and hoisted 20 feet in the air to the second floor level by heavy duty hyster. Material has been positioned in the east half of Bldg. 8's second story, which was built originally with steel supports to hold a load of around 5 million pounds, well beyond the weight of the records, even if they eventually fill the entire floor.

Ultimately, all Convair permanent records, including those of the former Astronautics division now stored at Plant 19, will be consolidated in Lindbergh Field's Bldg. 8, D. R. Pardee, manager of management systems, said.

Plane Painting Orders Firmed

Since Convair Service Center announced its new painting service for small planes and put its first job through the paint shop a couple of weeks ago (**GD/NEWS**, Aug. 24) it has nailed down six more firm orders with paperwork pending on two others, in addition to making at least a dozen estimates.

According to E. J. Huntsman, Service Center manager, phones began ringing the moment small craft owners received notices of the new buisness venture, proving to Service Center officials the need for such a quick, reasonably-priced service in this area.

So far, in addition to the first craft painted — a twin-engine Navion belonging to Cubic Corp. —the Center's paint shop has refinished a single-engine Bonanza owned by R. D. Gray of San Diego State College; a single-engine Beech Bonanza for Harold Lewis; a twin-engine Bonanza for Gibbs Flying Service which has three more coming, one every other week. Consair's Flying Club plans to send in two of its club-owned planes, a Cessna 172 and a single-engine Comanche.

Don Evanson, the Service Center's contact man, says that requests for estimates are coming in every day. Prices have been given on Aero-Commanders, Lockheed Lodestars, Cessna 195s, Cessna 182s, Cessna 172s, and Beech Bonanzas. Convair's own Aero-Commander also has been estimated. Evanson's in-plant extension for further information and estimates is ext. 565, Lindbergh Field plant.

Convair C-141 Program Nears Fifth Birthday

(Continued from Page 1)

While the 179th unit was being moved off the production line in Convair's Lindbergh Field C-141 production area to be readied for shipment, articles 184, 185, and 186 were placed in the major fixtures, and sub-assembly work was begun on No. 192.

Delivery schedule since the first of this year has been over nine a month—9⅛, to be exact—with a line move every 2¼ working days, N. P. Pearson, who has been in charge of C-141 production throughout the entire span of the subcontract, said.

Assisting Pearson in supervision of production areas are Ed Wallin, vertical stabilizer structure; Ben McMicken, vertical stabilizer primary; Mel Doerr, horizontal stabilizer structure; and Jack Benedict, horizontal stabilizer primary.

Other assistant foremen are: Bud Hammack, fore and aft bullet and miscellaneous assembly; Eddie Rice, rudder assembly and skin panels; Jim White, center tie box and fore and aft spar for horizontal stabilizer; George Williams, elevators.

First empennage built at Convair was delivered to Lockheed-Georgia in March, 1963, and first flight was in December of that year from Dobbins Air Force Base, Ga. The first C-141, which was designed to carry payloads of 85,000 at speeds up to 550 miles an hour, was delivered to the Air Force in ceremonies at Tinker AFB, Okla., in October, 1964.

Since that time it has been in operation by the Military Air Transport Service carrying military cargo to all parts of the world. C-141s now are regularly flown back and forth between the United States to Viet Nam, delivering troops and equipment and evacuating patients.

The C-141 Systems Program Office of the Air Force Systems Division, Air Force Systems Command, is directing development and procurement to modernize the Military Air Transport Service's airlift. However, the C-141 has also been designed for Federal Aviation certification as a commercial airfreighter.

Atlas Poised For Gemini Shot at Cape

(Continued from Page 1)

posite tests were run Aug. 26. A simultaneous launch demonstration, directed from NASA-Houston, was run Sept. 1 with both the Atlas and Titan complexes in the countdown and with Conrad and Gordon aboard their spacecraft.

A technical review of the vehicles was conducted by NASA and Brig. Gen. Paul T. Cooper, commander of the Air Force's Space Systems Division, is to conduct a flight safety review.

Jack L. Bowers, Convair division general manager; Grant L. Hansen, vice president-launch vehicle programs; Andrew Kalitinsky, assistant program director-launch vehicle engineering, and Richard W. Keehn, Atlas LV-3C manager, are expected to be present for the flight safety review and launch.

During the 15th and 16th revolution, Gordon is to link the Gemini spacecraft and Agena target vehicle with a 100-foot tether. After the docked Gemini-Agena is boosted into an orbit with a 750-nautical-mile apogee on the second day and returned to original orbit with power from the Agena engine, the two spacecraft will be separated and will fly in formation while linked by the tether.

Twelve scientific and technical experiments also are planned for the 70½-hour mission. Re-entry of the Gemini 11 spacecraft is to be controlled by an on-board computer with manual control assumed only if needed.

After the spacecraft splashdown in the Atlantic about 725 miles east of the Cape, Agena will be moved into a higher "parking orbit" and left for possible use as a passive target in future manned space missions.

Atlas SLV-3 No. 5307, target booster for the Gemini 12 flight, is undergoing final checkout at Kearny Mesa. Dr. George E. Mueller, associate administrator for NASA's Office of Manned Space Flight, is tentatively scheduled to be present for its "sell off" ceremonies next week.

You can buy U. S. Savings Bonds regularly for as little as 50 cents a week.

VOTE REGISTRATION SERVICE PLANNED

(Continued from Page 1)

Sept. 13; north end Bldg. 3 near lunch wagon, Sept. 14.

Air Force Plant 19 — North end cafeteria, Sept. 12-14.

"Convair has always tried to be a good citizen in the San Diego community," Jack L. Bowers, general manager, said. "We hope each employe will feel the same sense of responsibility, regardless of where he lives in the county, and will fulfill his obligation as a good citizen by registering, studying the issues and voting."

Bowers pointed out that the November ballot will contain several legislative issues important to the future growth of San Diego as well as major partisan races.

"The Registrar tells us there are about 116,000 San Diego County residents ineligible to vote because they haven't registered," he said. "We hope none of those still ineligible after the Sept. 15 registration deadline will be Convair division employes."



QUALIFICATION—Jack L. Bowers, Convair division general manager, sets example by registering to vote in Nov. 8 general election as Walter J. Slocomb Sr., a deputy registrar, left, observes. Deputy registrars will be on duty at Convair plants during lunch hour periods next week.

Now—
U.S. Savings Bonds
Pay More Interest

★★★★★

4.15% when held to maturity

★★★★★

Higher interest on the Bonds you already own, too!

★★★★★

U.S. Savings Bonds are a better way to save than ever

Because now all Series E and Series H Bonds bought after December 1, 1965, will earn the new, higher interest rate of 4.15% when held to maturity. That's only 7 years for Series E—9 months quicker than before. And your outstanding Bonds will earn more, too, from now on. So, you don't have to cash in your present Bonds to get the attractive new rate. All General Dynamics employes can buy Bonds regularly through the convenient payroll deduction plan. You can authorize regular Bond buying for as little as 50 cents a week!



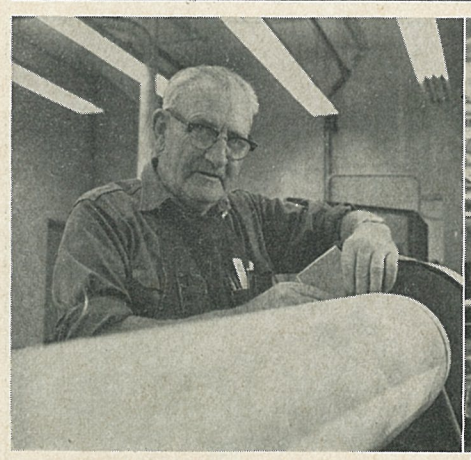
"Today, none of us can remain aloof on the sidelines."



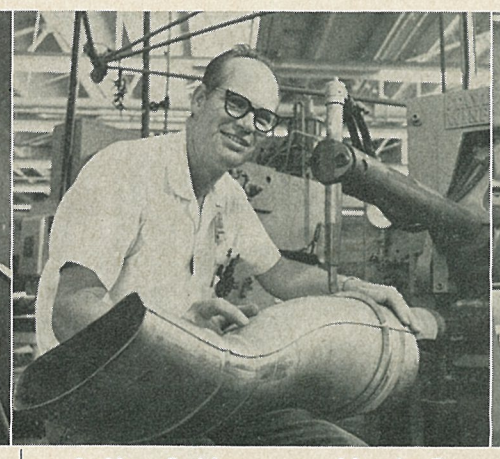
"Today, above all, is a time for all Americans to rededicate themselves to the spirit that animated the Minutemen of Concord—who serve as a symbol of the Savings Bond program. For today, as at the founding of our nation, it is freedom which is again at stake. Not all of us are called upon to fight in the jungles of Vietnam, but while our men are there, in the front lines of a distant land, none of us can remain aloof on the sidelines. We must all do our share—in every way we can—to support our men in Vietnam. One sure way is open to all Americans through the Savings Bond program."

Lyndon B. Johnson

You Can Be a Regular Bond Buyer For as Little as 50 Cents a Week



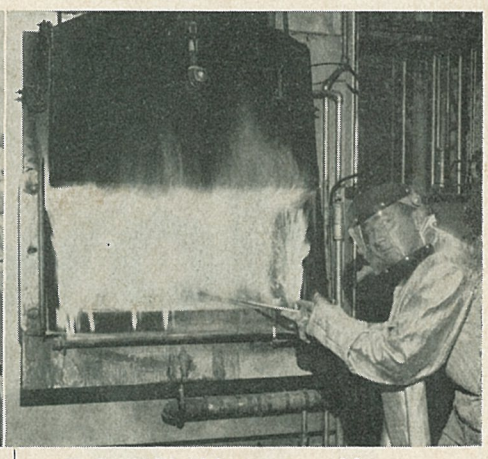
Joe J. Davis, model builder in Convair's model shop at Lindbergh Field plant, was snapped as he sanded a pine wood core on the 14-ft. wood lathe in the shop. Wooden core will be used to mold fiber glass pipe for the low speed wind tunnel. Davis has been with Convair for 16 years—the first ten as a mockup and wood tooling man in tooling, and the last six in the model shop. He spent 30 years in service with the U.S. Navy, retiring as a chief warrant carpenter. During his long years of service he visited practically every part of the world and was assigned to the South Atlantic theater during World War II. San Diego was his home port over most of his Naval duty. Now, he and his wife make their home in the Paradise Hills area. Their family is grown with homes of their own.



J. Von Smith, spot welder in Dept. 002 at Lindbergh Field plant, has been in Convair welding departments the last 11 years. He was based first at the former Plant 2 on the F-102/106 programs, working up to set-up man at that time. When the plant was taken over by Astronautics he was reassigned to Atlas and Centaur projects. He transferred to Lindbergh Field plant early this year. A native of Fayetteville, Ark., he learned welding in a metal shop course sponsored by the National Youth Association before joining the Navy during World War II. He moved to San Diego in 1950 and was employed by NTH Products of El Cajon before coming to Convair. He, his wife, Dorothy, and sons, Garry, 19, and Von Jr., 7, live in the Mesa Hills area. The family enjoys hunting and fishing as outdoor recreation.



Ethel Tinkham, a lead lady in key punch operations, Dept. 101-6 at Kearny Mesa, supervises 11 key punch operators working on accounting tasks during first shift operations. Among her many duties are job scheduling and work distribution, teaching new jobs and explaining new procedures and assisting with reading information being transferred from written documents to "machine language." A Convair employe 20 years, she first worked with tab machines and has seen many new developments in computer technology. Mrs. Tinkham calls herself a "career person at heart" and says her present duties give her "a challenge every day." A native of Kansas, she lives in North Park and enjoys reading novels and philosophy and attending motion pictures and symphony performances in her spare time.



E. S. "Al" Abbott, a steel heat treater in Dept. 733-1 at Kearny Mesa, wears an aluminized asbestos apron and asbestos gloves as he removes tubing and other materials in and out of 1,575-degree heat in a hardening furnace. Heat treating prevents scaling and specimens are hardened by being dipped in quenching oil after being removed from the furnace. Parts are treated an hour for each inch of thickness and pieces weighing up to 400 pounds are treated in the largest furnace. Abbott, a Convair employe 7½ years, has been a heat treater 14 years and says he really enjoys it. "You never know what you're going to get into next," he says. Abbott lives with his wife, Claranna, in El Cajon and they have three children including a son overseas in the Navy and a married daughter living nearby.

Organization Set Up For Cost Reduction, 'Do Good Work' at LF

Headquarters has been established at Convair Lindbergh Field for coordination of all cost reduction, value control, and "Do Good Work" activities at that plant, W. L. Van Horn, LF plant manager, announced.

R. B. Thompson will coordinate cost reduction and value control and Manuel Mosely will administer the "Do Good Work" program at LF. Both report dierctly to W. R. Bruce, manager of administration, planning and control-Lindbergh Field operations, and work closely with the division's cost reduction and "Do Good Work" functions.

Thompson and Mosely are responsible for promoting the activities, generating interest and providing information on all aspects of the programs. Both meet regularly with departmental representatives, maintain records and generate reports on department goals and achievements.

Mosely, in addition, performs specialized analysis relating to operations research, indirect work measurement, and operations improvement.

Their offices are located in Bldg. 1 within the Room 31 area, north of the patio. Phone extensions are: Thompson, ext. 471; Mosely, ext. 559.

SON GRADUATES MAGNA CUM LAUDE

Dennis B. Ebel, son of W. A. Ebel, a schedules engineer for Dept. 527-0 at Lindbergh Field, recently was graduated magna cum laude from Villanova University. He will work toward advanced degrees at Augustinian College in Washington, D. C., before being ordained and beginning a teaching career.

NEXT SALVAGE SALE WILL BE SEPT. 17

Monthly employes' sales day at the Convair salvage yard at Lindbergh Field plant is set for Saturday, Sept. 17. All GD people may "shop" at the yard, adjacent to Gate 5 off Washington St., between the hours of 8 a.m. and noon.

CHARGER TICKET SALE CONTINUES

Tickets to the Chargers game with Boston this Saturday, Sept. 10, can still be purchased at reduced prices at all plant employe services outlets until 4:30 p.m. tomorrow, Thursday. Discount price, through CRA arrangements, is $2.50 for $3.50 seats.

Information Services Series Scheduled For Next Week

Presentations on how to obtain and make best use of information services will be given for Convair division personnel next week by representatives of the American Institute of Aeronautics and Astronautics.

The one-hour briefings on "Optimum Utilization of Aerospace Science and Technical Information" are scheduled at the following times and locations:

Monday — 10 a.m. and 1 and 3 p.m. in Bldg. 17, Classroom 1, at Kearny Mesa.

Tuesday — 8 and 10 a.m. in Bldg. 17, Classroom 1, and 1 and 3 p.m. in Bldg. 33, Classroom 12, at KM.

Wednesday — 8 and 10 a.m. and 1 and 3 p.m. in the Bldg. 5 engineering auditorium at Lindbergh Field.

Additional meetings will be scheduled Thursday if required. Reservations are being taken by Donn Olson of educational services, KM ext. 1931.

Information on NASA's new SCAN (Selected Current Aerospace Notices) computer system for disseminating current information more quickly and efficiently will be among services discussed.

The NASA SCAN service soon will be added to the Convair division library's technical information program.

Keith Blair, library supervisor, said the computer-printed output can be produced at low cost and will be distributed directly by NASA to the individual requesting the service.

SCAN selection will be by standard subject topic "profiles" on which the individual needs prompt announcements of current documents. The documents themselves will be on file or will be obtained by the library.

Engineers Invited To Submit Papers

A call is out for papers for the Annual Engineering Conference of the American Society of Tool and Manufacturing Engineers to be held next spring in Chicago.

Engineers are invited to submit technical papers for the conference. Abstracts, 200 to 250 words, must be in the hands of the ASTME Technical Paper Evaluation Committee by Oct. 24. Authors will be notified of acceptance sometime in November and manuscripts will be due Feb. 15, 1967. ASTME will print all accepted texts and make them available to the attendees.

Correspondence should be directed to: Director, Engineering Conferences, ASTME, 20501 Ford Road, Dearborn, Mich., 48128.

VULTEE ALUMNI TO MEET OCT. 15

Vultee Club members have scheduled their 19th annual dinner meeting for Oct. 15 in the Charter House in Anaheim.

About 30 or 40 Convair division employes, alumni of the former Vultee Aircraft Corp., attend the reunion, which attracts several hundred every year, some from as far as New York.

Vultee Aircraft in 1943 became a division of Consolidated Vultee Aircraft Corp.

Those on club mail list will receive information and a reservation form to return to 11010 Garfield Pl., South Gate, Calif.

Inquiries may be directed to P. A. Nagy, KM ext. 2056, or W. E. Magnuson, KM ext. 2501, Convair.

Safety Crib Hours On New Schedule

Convair safety crib hours have been readjusted at both Kearny Mesa and Lindbergh Field plants to extend the hours at the LF crib two days a week for convenience of second-shift workers.

Safety crib in Bldg. 16, LF, is now open Mondays, 8:30-11:45 a.m.; Tuesdays, 8:30-11:45 a.m. and 12:30-5 p.m.; Wednesdays, 1-5 p.m.; Fridays, 8:30-11:30 a.m.

KM crib in Bldg. 5 is open Mondays, 1-5 p.m.; Wednesdays, 8:30-11:45 a.m.; Thursdays, 8:30-11:45 a.m. and 2:30-5 p.m.; Fridays, 1-5 p.m.

ADULT SCHOOL BEGINS CLASSES ON MONDAY

Fall semester classes for adults will start next Monday, Sept. 12, at San Diego Adult School, 12th and Russ Sts. Courses offered meet the wide range of adult interests in further education. Information on schedules can be obtained by calling the school office, 233-7402.

JUNIOR LEAGUERS VISIT CONVAIR

Thirty members of the San Diego Junior League visited Convair division's Kearny Mesa plant Aug. 29 for a briefing on division products and a plant tour.

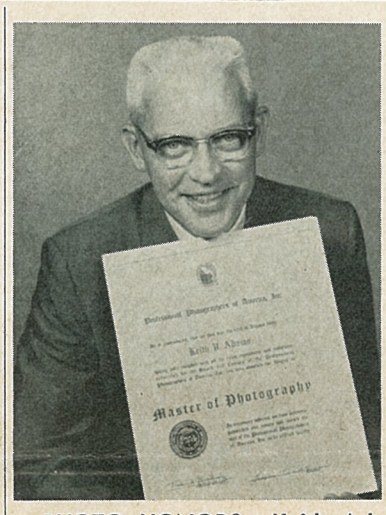


PHOTO HONORS—Keith Adams of Convair division was one of 65 photographers throughout nation to receive "Master of Photography" award this year.

Lensman Earns Photo Honors

Keith Adams, photographer in Convair division's still photo section (Dept. 123-0), last month was named a "Master of Photography," highest award given by the Professional Photographers of America.

He received the honor at an awards banquet in Chicago held in conjunction with the 75th International Exposition of Professional Photography and 14th National Industrial Photographic Conference in the Conrad Hilton Hotel.

Adams has been submitting prints and papers for the past seven years in amassing points. He had two prints exhibited this year and presented two papers—one on photoanthoprometric techniques in measurement taking and one on an application of a beam splitter to establish background references in streak photography.

He is the first photographer in the San Diego area to receive the award in the industrial division and the first Convair photographer to receive it.

Leasure-Darr Team Shares Bridge Win

Eve Leasure and Francys Darr won North-South and Tony Miller and Don Leistico took East-West honors in CRA Bridge Club play Aug. 19 at the CRA Clubhouse.

The club now has a new seven-week fall series underway. Bob Rustad won the last series.

Players are being sought for Industrial Team play at 7:30 p.m. the first and third Wednesdays each month at the San Diego Bridge Studio, Front and Ivy streets.

S-C Will Market Film Products

Stromberg-Carlson Corp. has negotiated an agreement with Kalvar Corp. of New Orleans, La., to market Kalvar-produced microfilm products, according to a joint announcement made late last month by Dause L. Bibby, president of Stromberg-Carlson, and Harold C. Harsch, president of Kalvar.

Bibby said that Stromberg-Carlson's Data Products division will manage the distribution of microfilm, microfiche, microfilm aperture cards and duplicating equipment, all made by Kalvar, a manufacturer of dry process photographic products.

Dry process photographic products made by Kalvar are developed by heat alone, without use of liquids, chemicals, or fumes. They already are used extensively for copying microfilm outputs from computer systems.

Bibby said additional sales of Kalvar products are expected to be made to customers who use the S-C 4020 and S-C 4400 high speed electronic microfilm equipment which record computer-generated business and scientific data directly onto microfilm.

The agreement covers the United States and Canada. Stromberg-Carlson will distribute Kalvar microfilm through selected Kalvar distributors and through Stromberg-Carlson sales offices.

Cribs Selling Safety Belts

A wide selection of top-quality auto seat belts is still on sale at both Convair safety cribs, Jack W. Garrison, Convair chief safety engineer, reminds drivers.

Belts, in a variety of colors, are priced at $2.10 each. They are easily installed and are tested to 6,000 lbs. They may be purchased at either Kearny Mesa or Lindbergh Field by cash or payroll deduction.

"Seat belts are the best possible insurance against injury or death for both drivers and passengers," Garrison stressed. "It is fully as important to have belts in the rear seats as in the front to protect every occupant of a car. And, above all, children should be protected by belts from the moment they can sit alone in a car. They not only are confined in one spot for their own protection, but are trained in the use of belts from infancy so they will be accustomed to belts by the time they are old enough to drive their own cars."

CRA Calendar

(For information on CRA activities call CRA Headquarters, Kearny Mesa, ext. 1111. Deadline for copy for the next issue of GD/NEWS is Sept. 14. Call ext. 1071 LF or 3322 KM.)

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ADVENTURERS — Members' slide showing Sept. 21, 7:30 p.m., CRA Clubhouse. Outing to Punta de Santo Tomas Sept. 24-25.

BADMINTON — Play Mondays, 7-10 p.m., Federal Bldg. Balboa Park.

BALLROOM DANCING—New classes start Sept. 19. Call Royce Riggan, ext. 1018 LF.

BOWLING — Winter leagues start play by middle of this month. For information call ext. 1111 KM.

BRIDGE — Play every Friday, 7:30 p.m., CRA Clubhouse.

CAMERA CLUB — Meeting Sept. 18, 7:30 p.m., Photo Arts Bldg., Balboa Park.

CERAMICS — Meetings Tuesdays and Thursdays, 7-10 p.m., CRA Clubhouse.

CHESS — Play Wednesdays, 7:30 p.m., CRA Clubhouse.

COINEERS — Meeting Sept. 21, 7:30 p.m., Convair cafeteria, Pacific Hwy.

DELTA DIVERS — Meeting Sept. 14, 7:30 p.m., CRA Clubhouse. Scavenger dive Sept. 18, La Jolla Cove.

FENCING — Workouts and instruction Fridays, 7:30-10:30 p.m., YWCA, 10th & C Sts.

FISHING CLUB — Meeting Sept. 21, CRA Clubhouse. Potluck, 6:30 p.m.; business session, 7:30 p.m.

GARDEN CLUB — Meeting tonight (Sept. 7), 7:30 p.m., Floral Association Bldg.

GOLF — CRA tourney Sept. 10-11, Coronado course.

HI-FI/MUSIC — Meeting Sept. 13, 7:30 p.m., CRA Clubhouse.

ICE SKATING — Sign by Sept. 16 for annual Autumn Weekend at Big Bear, Sept. 23-25. Call Bud Davies, ext. 2751, KM. Weekly GD skate nights Thursdays, 6:15-7:45 p.m., Mission Valley Ice Arena.

PISTOL CLUB — Club shoot 9:15 a.m., Sept. 11, SD Police Range, Federal Blvd. and Home Ave.

RADIO CLUB — Meetings first and third Thursdays, 7:30 p.m., CRA Clubhouse radio room. Call Fred Schulz, ext. 1392, KM.

RIDING CLUB — Meeting Sept. 14, 7:30 p.m., CRA Clubhouse. Equitation show, CRA ring, Sept. 18.

ROCKHOUNDS — Meeting Sept. 14, 7 p.m., CRA Clubhouse. Field trip to De Luz, Sept. 17-18. Gillespie Field rockhound shack reopens tonight (Sept. 7), 7-9 p.m.

ROLLER SKATING — Free GD skate night Sept. 19 at Skateland, Front and G Sts. Tickets at employe services outlets.

SCULPTURE — Workshop sessions Mondays, 7:30-10:30 p.m., CRA Clubhouse.

SKI CLUB — Water skiing Sunday mornings, 8 a.m.-noon, off Crown Point; Wednesdays after work off Santa Clara Point. Call Joe Harris, 284-0278.

SPORTS CAR CLUB — Meeting Sept. 14, 7:30 p.m., Convair executive dining room, Pacific Hwy.

SQUARE DANCING — New beginners class starts Sept. 13, 8 p.m., CRA Clubhouse. Sign at first three sessions, Sept. 13, 20, 27. Intermediate square dancing Thursdays, 8-10 p.m. Call Marty Stutz, ext. 1441, KM.

SWIMMING — Family swim night Sept. 17, 7-9 p.m., Mission Beach Plunge. Tickets at employe services outlets.

TENNIS — New beginners course starts Sept. 13. Call Ray Hardy, ext. 1405, LF; Bob Herold, ext. 3392, KM; Bill Connor, Plant 19 ext. 1393. Fall invitational tourney Sept. 17-18, 24-25, Oct. 1-2. Entry forms at CRA Clubhouse.

TRAILERS — Road Runners to attend TTCA Border District Rally at Fallbrook Sept. 22-25. Call Bob Browning, 295-5369, by Sept. 10. No September meeting scheduled.

TOASTMASTERS — Convair Toastmasters No. 3745 meet Wednesdays, 4:15 p.m., Dynamics Toastmasters No. 457 meet Thursdays, 5:15 p.m., both in CRA Clubhouse.

TOASTMISTRESS CLUB — Serra Mesa Club meets first and third Mondays, 7:30 p.m., CRA Clubhouse.

TROPICAL FISH — Meeting Sept. 12, 7:30 p.m., CRA Clubhouse.

WIVES CLUB — Day at the Caliente Races, Sept. 17. Call Lucille Pilot, 583-0852. Luncheon Sept. 21, CRA Clubhouse. Call Jeanne Beatty, 273-3971, or Leta Robinson, 286-0868, for reservations. Monthly potluck, CRA Clubhouse, Sept. 28.

WOMEN'S GOLF — Monthly tourney Sept. 10, Coronado course.



RECORD HOLDER—R. J. Foley, Convair research engineer, displays model boats that set world speed records at recent national championship regatta in Illinois.

World Champ

Foley's Boats Set Records

R. J. Foley, a research engineer in the computer technology group of Convair division's Dept. 595-0, set world speed records for Class B flat-bottom and Class C hydroplane radio controlled model boats at the International Model Power-Boat Association's national regatta Aug. 20-21 at Potawatomie Lake, Ill.

He designed and built both the 24-inch flat-bottom and 30-inch hydroplane models. His hydroplane, burning castor oil and methanol, was clocked at 33.836 miles an hour.

Although this was the first year for Foley to enter the national championship, his model boats also won first place awards in the Class B flat-bottom and Class C and D hydroplane 1/16-mile straight-a-way time trials.

Foley's boats are made of plywood, coated with fiber glass and enamel. They are powered with "hopped up" model airplane engines with throttles, flywheels and water jackets added. Foley is a member of the San Diego Argonauts Radio Control Model Boat Club.

Doraine Offerman, Convair Dept. 964-5, is purser for the Argonauts and her son, Karl, is also active in the club. Keith C. Gaeth, Dept. 019-0, is a member but at present is spending his spare time building a racing car for time trials on the Bonneville, Utah, salt flats.

You can buy U. S. Savings Bonds regularly for as little as 50 cents a week.

Davis' 77 Low For CRA Golf Meet in August

Winners in the CRA golf tournament Aug. 13-14 at Chula Vista municipal were:

Flight 1 (0-14 handicap)—Russ Davis, Dept. 002-0, low gross (77); Bill Brask, Dept. 572-3, second (80); Marion Hill, Dept. 400-2, low net (66), C. N. Bagaloff, Electronics-SD, second (69).

Flight 2 (15-20 handicap) — Frank Kany, Dept. 420-4, low gross (87), Mel Doerr, Dept. 041-0, second (88); Paul Williams, Dept. 957-0, low net (72), H. T. Fischer, Dept. 780-2, second (73).

Flight 3 (21 and over handicap) — Carl Lind, Dept. 957-0, low gross (91); John Gordon, Dept. 595-0, second (93); Max Walden, Dept. 400-1, low net (70), Bill Sileneck, Dept. 015-0, second (71).

Winners in the July 30-31 tourney at Coronado were:

Flight 1 (0-13 handicap)—Jack Weaver, Dept. 574-1, low gross (76); Bill Jaynes, Dept. 041-0, second (80); C. N. Bagaloff, Electronics-SD, low net (67), Mark Pruitt, Dept. 957-0, second (67).

Flight 2 (14-19 handicap) — Paul Williams, Dept. 957-0, low gross (80); John Jodka, Dept. 191-0, second (83); Terry Kell, Dept. 423-0, low net (66), Joe Hooker, Dept. 970-0, second (67).

Flight 3 (20 and over handicap)—Carl Lind, Dept. 957-0, low gross (89); Al Van Horn, Dept. 400-1, second (94); J. D. Beamer, Dept. 420-7, low net (71), Eric Torp, Dept. 191-0, second (72).

Wives Planning Busy Schedule

Convair Wives have three events planned this month — a day at the Caliente Races, Saturday, Sept. 17, as the special event of the month, a Sept. 21 luncheon and Sept. 28 potluck, both at CRA Clubhouse.

Lucille Pilot, phone 583-0852, is taking reservations for the bus trip to Caliente until Sept. 12.

Husbands and friends are invited. Cost will be $1.80 for round-trip transportation by bus, and $2.50 for cocktail, buffet luncheon, and reserved admission to the race track. Bus will leave La Mesa Blvd. and Jackson Drive in La Mesa at 10:15 a.m. and return about 5:30 p.m. Checks are to be mailed to Mrs. Pilot, 5633 Easton St., SD 92120.

Prophet Co. will cater the Sept. 21 noon luncheon at $1.50 per person. Casa de Lopez Candle Shop of Old Town will present the program on "Candles of the World." Jeanne Beatty, 273-3971, and Leta Robinson, 286-0868, are taking reservations.

Members are asked to share their ideas and patterns for Christmas articles and decorations at the crafts session in conjunction with the Sept. 28 potluck.

Adventurers to See Holiday Films, Slides

CRA Adventurers will see the film, "Skyline Hike Over Muir Trail," at their Sept. 21 meeting, 7:30 p.m., in the CRA Clubhouse. Slides and filmstrips made by members during summer vacations or club outings also will be shown.

A weekend trip to Punta de Santo Tomas, south of Ensenada along the Baja California coast, will be held Sept. 24-25 under the leadership of Jorge Zorrilla.

Twenty members recently returned from a week's tag-along car camp excursion vacation trip through the Navajo Indian country in Northern Arizona.

A highlight was observance of a religious snake dance ceremony, traditionally designed to bring rain. Commissioner Dick Bowen, said that, ironically, it rained, too!



SQUARE DANCE OFFICERS—New CRA Square Dance Club officers and callers include, back row, left to right, Alan Conolly, Mark Markham, Dot Markham, Jim Lafferty, Roland Hagar, Dotty Vander Walker, Gene Hagar, Van Vander Walker, Jim Cravens and Joe Bulfer. Front row: Edna Conolly, Aurora Lafferty, Flo Cravens and Mearice Bulfer. Merritt and Diane Strickland and Commissioner Marty Stutz were not present for photo.

Roland and Gene Hagar Elected Presidents of Sq. Dance Club

The CRA-sponsored Square Dance Club recently elected its unique husband-wife officers for the 1966-67 season.

They are Roland and Gene Hagar, president; Merritt and Diane Strickland, treasurer; Jim and Aurora Lafferty, secretary; Joe and Mearice Bulfer, social chairman; Alan and Edna Conolly, publicity chairman; Mark and Dot Markham, sheriff; and Jim and Flo Cravens, association representative. Marty Stutz is CRA commissioner.

Intermediate square dancers are invited to join dance sessions at 8 p.m. each Thursday in CRA Clubhouse at Kearny Mesa.

A 20 to 22-week beginners square dance class will be held at 8 p.m. Tuesdays beginning next week (Sept. 13) with instruction provided by the club's callers, Dotty and Van Vander Walker.

Hagar said the course is designed for those who have never square danced or who have not completed a beginners course, although those wishing to "brush up" on previously learned techniques will be welcome. Registration will be accepted during the first three class sessions.

For further information, call Stutz at KM ext. 1441, Hagar at KM ext. 1954, Strickland at LF ext. 634, or Lee Lemen at General Atomic ext. 556.

Road Runners Plan To Attend Rally

CRA Road Runners will attend the T.T.C.A. Border District Rally at Fallbrook Sept. 22-25 en masse under direction of Carl Monds, wagonmaster.

Rally fee is $5. Reservations must be made by Sept. 10 with Bob Browning, secretary, home phone 295-5369. Members are reminded to take their club uniforms to wear at the potluck.

The trailer group has changed its monthly meetings from the third Thursday to fourth Thursday. However, no business meeting is scheduled this month because of the rally.

Fred Stone, wagonmaster, led five units to Oak Springs, east of Temecula, for the Aug. 12-14 outing. Browning, Ed Wawrzynski, and Stone won the three "gate prizes" in the drawing.

GD Women Golfers Play River Valley

Ora Carpenter (Flight A) and Clara Granat (Flight B) topped the field at the GD Women's Golf Club monthly match Aug. 13 at River Valley course.

Flight A gift certificate winners were Ann Gagnon, Freda Magargal, Mabel Dunn, and Iris Oster. Flight B winners were Betty Jackson, Evelyn McFall, Emma Webb, Florence Kell.

The girls will play an 18-hole course for the first time this Saturday (Sept. 10) when they try Coronado. Tee-off time is 9:30 a.m.

Convair Coineers Arrange Exhibits

Convair Coineers will arrange their exhibits on the "silver" theme for the group's Sept. 21 meeting, 7:30 p.m., Convair cafeteria. Fifteen silver dollars and a mystery coin will be given away.

Marta Conel won the 1911D $20 gold piece at the August meeting which drew an attendance of 101.

Rockhound Workshop Will Reopen Tonight

CRA Rockhounds open their fall season with a field trip to De Luz over the weekend of Sept. 17-18. Plans will be discussed at the first club meeting following the summer vacation next Wednesday, Sept. 14, 7 p.m., in CRA Clubhouse.

The rockhound workshop at Gillespie Field reopens tonight (Sept. 7) after its annual renovation. It will be open every Wednesday from 7 to 9 p.m. for lapidary work and instruction. The lapidary workshop in the Clubhouse at Kearny Mesa is open on its regular schedule — Mondays through Thursdays, 7-9 p.m., and Saturdays, 10 a.m.-5 p.m.

Anyone interested in the Rockhounds group may call Chuck Purdy, ext. 1106, or John Taylor, ext. 3011, both Kearny Mesa, for details. New members and guests are welcome at all meetings and field trips.

Entries Solicited For Tennis Tourney

A CRA, Management Club and General Atomic invitational fall tennis tournament has been scheduled for Sept. 17-18, 24-25 and Oct. 1-2.

Entries are due Friday (Sept. 9). Entry blanks are being mailed to previous tournament participants and may be obtained from R. E. Herold, KM ext. 3392, or at CRA Clubhouse. Entry fee will be $1 and 50 cents for each event entered, to cover partial cost of trophies.

Courts at Kearny Mesa, General Atomic, Mesa College and Morley Field will be used.

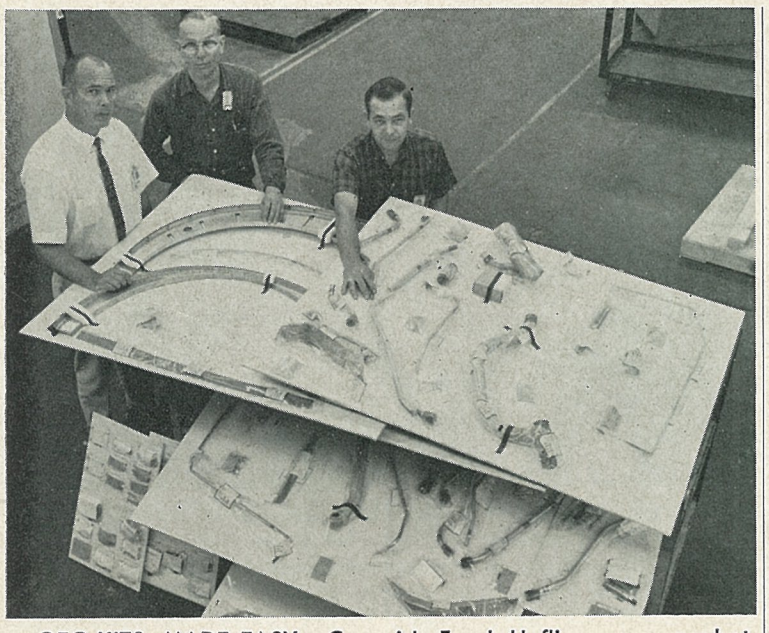
Nine-Year-Old Rider Outpoints 'em All

Nine-year-old Davy Watson Jr., riding the mare Gussie Moran, outpointed over 50 adult and junior contestants in CRA Riding Club's all-day fun show Aug. 21.

Davy was way out in front with a total of 26 points for his time in such gymkhana events as figure 8 stake, quadrangle stake, cloverleaf barrels, musical hat, potato race.

The next club show Sept. 18 will emphasize equitation classes, Boyd Spencley, show manager, said.

Regular club meeting will be Sept. 14 in CRA Clubhouse.



QEC KITS, MADE EASY—Convair's Frank Heflin, spares analyst, Lindy Erickson, crater-packer, and Paul Bieberdorf, Convair 600 kit packaging leadman, check over Quick Engine Change kit for Convair 600—all parts attached to marked boards as time saver during installation.

Convair 600 Parts Easy to Spot Thanks to Packaging Boards

Airline mechanics replacing engines on Convair 600s get a big assist from Convair's streamlined packaging of all parts needed for engine buildup.

They no longer have to dig into boxes full of sacked parts, or have to empty parts out of the box in a heap and sort them out to find the ones they need.

Convair's packaging experts, in close conjunction with service parts, have recently evolved a method of packaging components by which parts are first bagged in plastic, then attached to boards representing separate systems.

Parts are packaged according to engineering drawings and strapped or stapled to marked locations on blueprints covering the plywood boards. Location of each part is identified by number and nomenclature so there can be no risk of confusion during installation.

A similar "board" packaging procedure was used for Convair 880 and 990 spares with excellent results, Paul Bieberdorf, who is in charge of Convair 600 kit packaging, recalls.

L. J. Hayes, commercial service parts supervisor, said, "We have adapted the same principles for the packaging of Convair 600 engine buildup kits in our constant effort to provide our customers with complete spares support. This simple and easy-to-understand arrangement is a great time-saver for ground crews, as well as an extra protection for parts in shipment and handling. Our customers have been enthusiastic about the 600 parts boards."

Dimensions of the four large boards, 54½ inches long by 44½ inches wide, were determined by the size of the largest components in the kit—the fire baffle parts. The small hardware boards are 24½ inches long by 14½ inches wide to fit into stock cartons. The entire kit is shipped in one large wooden box, for the four large boards, and two cartons, holding the 12 small ones.

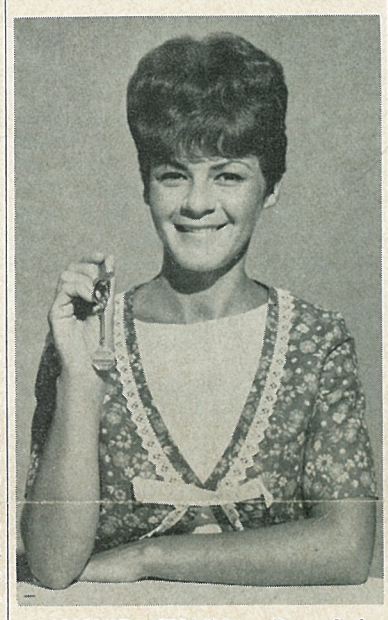
Con-Trib Votes $7,362 in Gifts

Members of the Convair Employes' Con-Trib-Club committee last month allocated $7,362.50 to community service organizations in San Diego County and in Florida.

A total of $2,970 was given to alcoholism agencies in the San Diego area with $370 going to the Council on Alcoholism, $750 to the Crossroads Foundation, $750 to the Pathfinders of San Diego, $750 to the South Bay Pioneers and $350 to the Twelfth Step House.

The Florida Sheriffs' Boys Ranch Fund, Inc., was granted $2,000 on recommendation of the Florida Employes' Advisory Committee and $700 was granted to the Children's Dental Health Association of San Diego and $587.50 to the Willis J. Oakes Branch of the Boys' Club of San Diego for repair of its swimming pool building.

On recommendation of the Florida Employes' Advisory Committee, $1,000 also was given to the Canaveral Chapter of the American Heart Association and $105 to the Salvation Army for use toward purchase of a step-van vehicle.



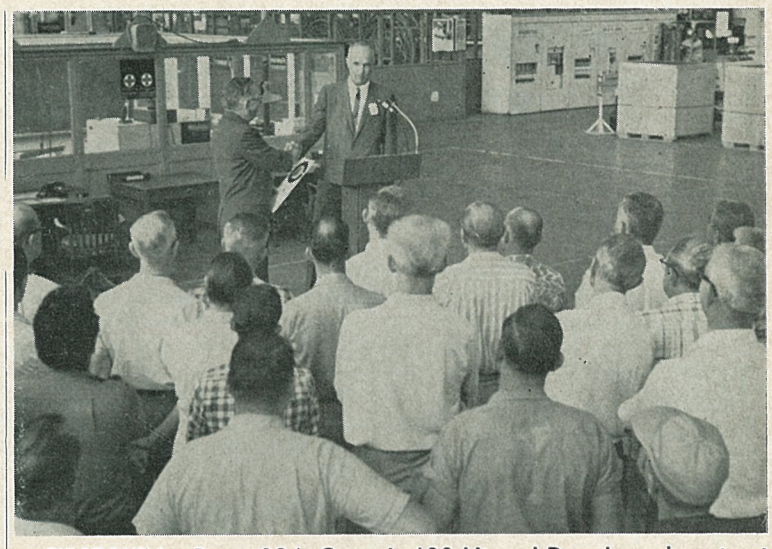
AWARD CHAIN — Dee Lain, steno-secretary in Dept. 193-1, displays key chain to be given those who submit eligible Employe Suggestions during five-week period beginning next Monday.

Key Chains to Reward Employe Suggesters

Convair division non-supervisory employes submitting eligible Employe Suggestions from Sept. 12 through Oct. 14 will receive a new key chain specially created for the division.

Only one will be given to each employe, regardless of number of suggestions submitted. Employes at the Eastern and Western Test Ranges also are eligible.

Although suggestions must meet normal requirements (as listed on ES forms) they do not necessarily have to be approved in order to qualify for a key chain award.



FIRST WIN—Dept. 024, Convair 600 kit and Douglas subcontract assembly, at Lindbergh Field plant receives its first Craftsmanship award for month of July. Harry Rote, foreman, accepts plaque on behalf of department from Jack L. Bowers, division general manager, who complimented Dept. 024 people on "dramatic improvement."

Atlas, Centaur Mated For Surveyor Launch

Atlas-Centaur 7 vehicles (Atlas 194D and Centaur 3D) have been mated at Cape Kennedy's Complex 36A in preparation for launch of Surveyor 2.

The AC-7 flight will be a direct ascent trajectory, placing the Surveyor into position for a quarter-million-mile coast to the moon.

Surveyor 2 will carry two cameras, one to photograph the lunar surface on approach and one for survey photography after landing. The spacecraft has been undergoing final pre-flight checks at the Cape.

E. E. Barringer is Convair project engineer for the AC-7 flight and Daniel Sarakon will be launch conductor.

A 25-man "tiger team" from Kearny Mesa was at the Cape Aug. 23-26 for an intensive review of the AC-7 vehicles and systems.

Barringer was team captain, R. H. Thomas was technical chief, J. W. Swigart was Atlas program chief and J. W. Ball was team coordinator. Areas of responsibility and other team members were:

Mechanical systems — J. B. Jarman, J. N. Warkomski, R. T. Kubota, H. L. Hahn, C. H. Oliver and R. M. Overdeer.

Electrical systems — J. W. Schaelchlin, L. A. Del Casale, H. G. Yett, P. E. Burke, J. L. Hemme and J. M. Simmons Jr.

Flight Control — R. A. Wilson, Kenneth Catlin and D. M. Peterson.

Structures and analytical — G. W. Norris, Samuel Merkowitz and G. C. Wilson.

Reliability and data — W. S. Hicks, R. H. Nicholson and C. A. Purdy.

NASA's Lewis Research Center also had a team of representatives assisting.

"We were happy with the team's results," Barringer said. "Everything looks very good."

An 18-man launch support team also will go to the Cape next week to assist with composite readiness tests and with other pre-launch activity.

Convair's Atlas-Centaur 9 vehicles (Atlas 174D and Centaur 8D) also have been mated at Complex 36B at the Cape for launch later this year. AC-9 will be a final research and development flight with Centaur engines to have a second "burn" following a coast in orbit.

Convair 600 Will Demonstrate For Business Air Association

General Dynamics' Convair 600 executive demonstrator aircraft will be on view for delegates at the 19th National Business Aircraft Association's annual meeting in St. Louis, Mo., the latter part of this month, Sept. 27-29.

The up-graded Convair 600, which has just received Federal Aviation Agency recertification at higher performance levels, is now based at LaGuardia Field in New York City where it is used by the Corporation for demonstration and sales purposes.

While at the St. Louis conference of companies which own and fly transports in the course of their business operations, the Convair 600 turboprop plane, equipped with Rolls-Royce Dart engines, will be on display at Lambert Field. Letters have gone out to Convair-Liner owners inviting them to take demonstration flights, said P. M. Prophett, Convair director of product development and service. Of the some 300 members, nearly 50 own and operate Convair-Liners, for the most part 240s.

A Convair booth also will be among exhibits in the Chase-Park Plaza, conference headquarters, with a Convair 600 film highlighting the Convair Service Center and 600 modification procedure.

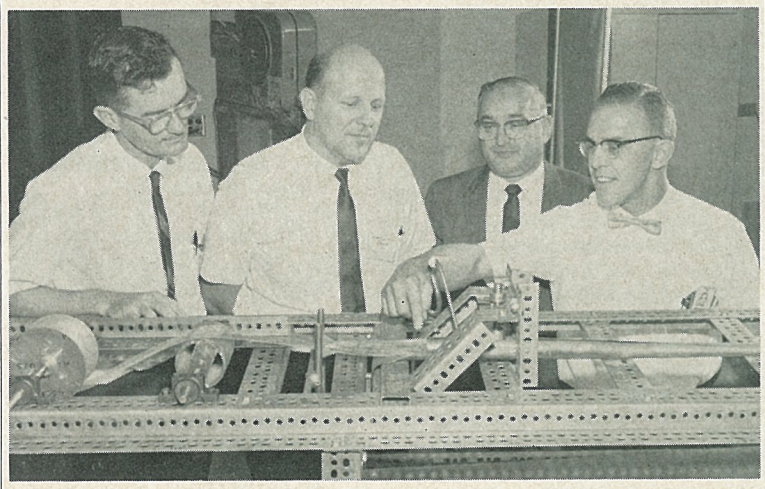
Jack L. Bowers, Convair division general manager, and W. L. Van Horn, Lindbergh Field plant manager, expect to head a Convair contingent of officials at the meeting.

The National Business Aircraft Association is a national non-profit organization of companies joining together for the promotion of the aviation interests of the member firms. Its goals are the improvement of aircraft equipment and service and the furtherance of aviation safety and economy of operation.

11-Pound Halibut Caught From Pier

W. C. Curtis, an inspector in Dept. 146-4 at Kearny Mesa, has found fishing for halibut "not bad" at San Diego's new Ocean Beach fishing pier.

Using anchovies for bait, he landed an 11-pounder on Aug. 13 at the pier and reeled in a 5½-pounder on a return trip.



NASA REVIEW—From left, Dr. John Park, metallurgist of NASA's Goddard Research Center's material research and development branch, and Charles Staugaitis, head of Center's metals section, review Convair's progress on development of deployable boom under advanced gravity gradient study with Abraham Hurlich, Convair manager of materials and processes, and H. Ross Wiant, manufacturing and development specialist.

First Atlas Delivered to AF Ten Years Ago on Aug. 29

Aug. 29 marked the 10th anniversary of delivery of Convair's first Atlas missile to the Air Force.

R. D. Rainey, now chief of product support for the industrial resources branch of the Defense Contract Administration Services office at Kearny Mesa, accepted Atlas 1-A for the Air Force in ceremonies in 1956. Jerry H. Powell, now a quality control inspector in Dept. 143-2, signed for the Company.

A total of 498 Atlas missiles and launch vehicles have been delivered during the 10-year period. Rollout of the 500th is scheduled later this month at Kearny Mesa.

* * *

Friday (Sept. 9) will be the seventh anniversary of the first operational launch of an ICBM by an Air Force crew at Vandenberg AFB.

The Atlas 12-D ICBM made its historic flight from Vandenberg to a target 4,300 miles west in the Pacific on Sept. 9, 1959. D. L. Fagan, Convair operations manager at Vandenberg, was a member of the Convair back-up crew for the launch.

Convair Vandenberg Management Club has scheduled an "Atlas Day" dinner meeting Sept. 16 in the Vandenberg Hotel in Santa Maria.

Jack L. Bowers, division general manager, is slated to be guest speaker. Maj. Gerald Winchell of Offut AFB, Neb., officer in charge of the first launch, is expected to attend.

There have been 162 Atlas launches from Vandenberg during the seven years, including 112 ballistic and 50 U. S. space program launches.

Convair Daughter Wins Science Honor

Beth Romanowich, 17, daughter of Richard R. Romanowich of Convair Dept. 531-2, recently spent a week in seminars at Walter Reed Army Institute of Research in Washington, D. C.

The experience was a result of having won a Superior Army Award at the International Science Fair in Dallas, Texas. Her exhibit, "Establishing a Blood Group System in the Laboratory Rat," won the sweepstakes award in the San Diego Science Fair.

Miss Romanowich plans a career in scientific research. She will enter the University of California's School of Veterinary Medicine at Davis this month.

Course in Piloting To Start Sept. 13

A course in "Piloting and Small Boat Handling" will be presented for 12 weeks in Room C of CRA Clubhouse at Kearny Mesa beginning at 5 p.m., Sept. 13.

The course, presented by the Helix Power Squadron, will be non-technical and wives and juniors are invited. Only cost will be for a textbook and charting materials.

For information call Lee Schenke, KM ext. 2889 or 3149.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 19, No. 19 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, September 21, 1966

Atlas Launch For Gemini 11 'Perfect' Again

Convair division recorded another "perfect" launch in the Gemini series Sept. 12 when Atlas SLV-3 No. 5306 boosted the Gemini 11 Agena target vehicle into space from Complex 14 at Eastern Test Range.

Gemini 11 astronauts Charles "Pete" Conrad and Richard Gordon were carried aloft 97 minutes later in their Gemini spacecraft atop a modified Titan 2 and successfully completed rendezvous and docking with the Agena on their first orbit.

Orion Reed, chief of launch operations for Convair at ETR, said telemetry data showed the Atlas "performed very satisfactory completely throughout the flight." Insertion parameters were "very nearly perfect," he said.

"We were very happy with the flight," Reed said. "It was one of the best so far in the program."

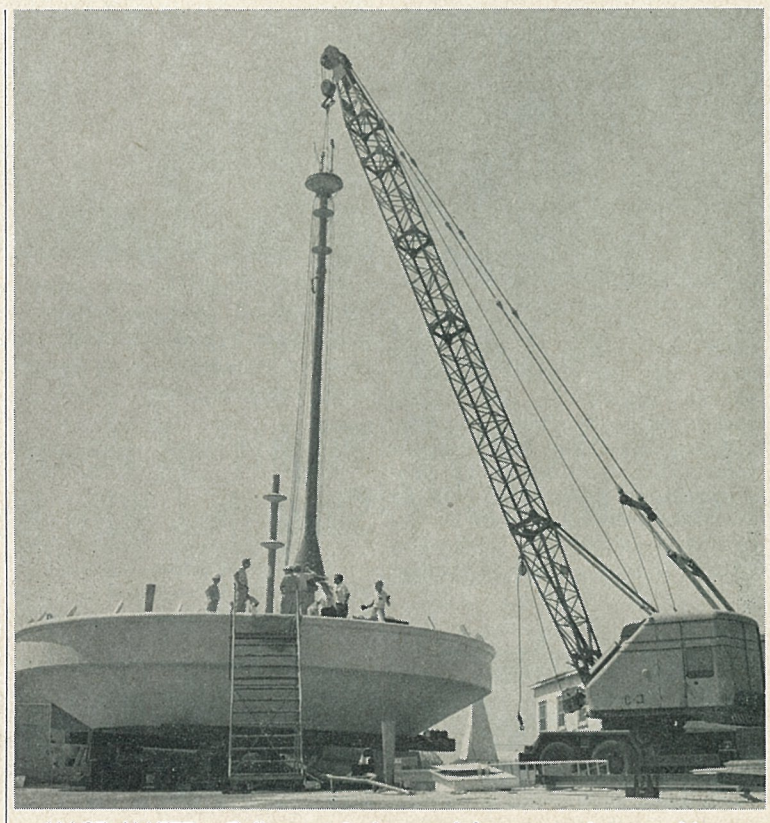
Convair officials at the Cape for the launch included Jack L. Bowers, division general manager;

(Continued on Page 2)

Navy Guests Hosted By Electronics Club

Electronics-SD Management Club hosted a trip to the AFL double-header in Anaheim late last month for 11 men based in San Diego with the Navy.

The club arranged charter bus transportation from Electronics operations near Lindbergh Field to Anaheim Stadium and purchased reserved seat tickets for the military guests. They currently are stationed on the USS Bausell, USS Picking, USS Ticonderoga, North Island Air Station, and Camp Pendleton Staging Battalion.



MAST MATED—Tall mast is lowered by crane into position on hull of second ocean data station buoy, "Alpha," being built at Convair for Office of Naval Research. Work is progressing at Convair Harbor Drive Test Site to complete buoy for testing off Southern California coast after first of year.

$1¼ Million Hybrid Computer In Action At Convair Division

A new $1,200,000 hybrid computer system has been purchased by Convair division and placed into use in the analog computer laboratory in Bldg. 4 at Kearny Mesa.

The new system combines a Comcor Inc. CI 5000 analog computer with a Scientific Data Systems 930 digital computer and enables engineers to simulate use of complex space hardware and reentry systems being designed or analyzed.

Robert D. Horwitz, supervisor of the analog computer lab, said the new computer equipment can be used as a single system or as four separate systems, depending upon complexity of the problem.

In order to get greatest return from its investment, Convair is selling time for use of the hybrid system to other West Coast aerospace firms and outside users.

Lockheed engineers are now using the system for four months under a $100,000 contract with an option for an additional eight months at the same rate.

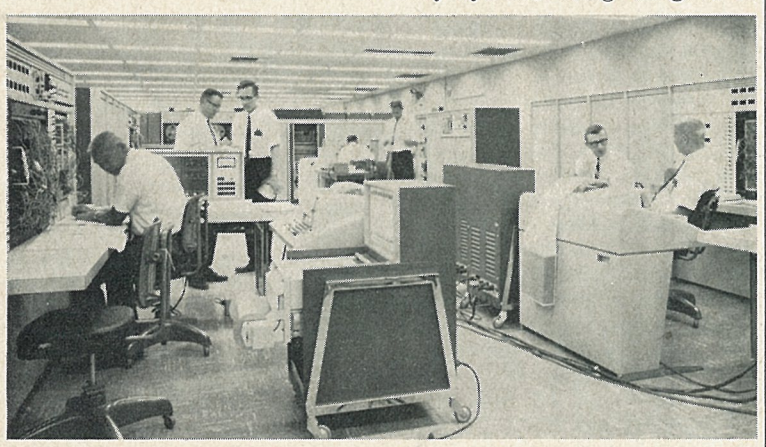
Rate for leased time is $65 per station hour plus overhead not to exceed $10 per hour.

Horwitz said the new system is being operated on an "open shop" basis and that any engineer who has used or studied analog and digital computers can program and operate. Assistance is provided as needed by the analog computer lab staff.

Two operator training courses to acquaint interested Convair personnel with the system have been completed, however.

The CI 5000 was built to Convair specifications and was the third such computer built. The first is being used by NASA-Houston and the second by Autonetics Division of North American Aviation.

Horwitz said Fort Worth division plans to purchase a similar system and that General Atomic, Electronics-SD and Electric Boat personnel are planning to use the system at Convair.



PROBLEM SOLVER—Convair division engineers are running first "hybrid problem" on new hybrid computer system recently installed at Kearny Mesa. Problem simulates flights of lifting body and manned re-entry vehicles.

'Flights' of Re-entry Vehicles Simulated With New Computer

"Flights" of lifting body vehicles and manned maneuvering re-entry vehicles are being simulated by Convair division engineers in the first "hybrid study" in which the division's new million-dollar hybrid computer system is being used.

Bernard Kuchta, a senior dynamics engineer in Dept. 585-3, and Robert Ring, a senior guidance analysis engineer in Dept. 586-2, said analysis of guidance and control systems problems of the vehicles will be made in the Company-funded study.

Configurations to be studied are Northrop's M2/F2 and HL-10 lifting bodies, Martin's SV-5 and Convair division's proposed VUTS-3 manned re-entry vehicles. Studies have been funded for one year but are expected to continue into the 1970s.

The vehicle equations of motion are programmed for the system with the digital part of the program fed into the computer by magnetic and paper tapes and the analog portion wired on a patchable analog board.

Interchangeable blocks of data on vehicle weight and size, aerodynamic coefficients, atmospheric tables, wind conditions and autopilot and guidance parameters will be entered from punched cards.

Each simulated flight will be run in "real time" (actual flight time) with continuous readout of critical variables being provided by strip chart recorder. By push-

(Continued on Page 2)

Division Library Hours Extended

Convair division library facilities are open for longer hours beginning this week.

Keith Blair, library supervisor, said the main library in Bldg. 4 at Kearny Mesa is now open from 8 a.m. to 4:45 p.m. daily and the branch library in Bldg. 5 at Lindbergh Field is open from 8 a.m. to 4:15 p.m.

Specification and technical order files in Bldg. 51 at Lindbergh Field remain open from 7:30 a.m. to 4:15 p.m.

Convair Commended On Orbiter Launch

Lunar Orbiter 1, launched for its moon exploration mission last month by Convair division's Atlas SLV-3 No. 5801 and an Agena second stage, last week was completing relay of scores of photographs it had taken of the lunar surface to aid in selection of future Apollo astronaut landing sites.

Convair division has been commended by NASA officials for its efforts in success of the mission.

"Please accept the deep appreciation of the Lunar Orbiter project and the Langley Research Center for the exceedingly well accomplished work of your personnel," Clifford H. Nelson, project manager, said in a telegram to Grant L. Hansen, vice president-launch vehicle programs.

"It is hoped our congratulations for another successful Atlas flight will be extended to all your personnel who contributed so ably," he said.

Oran W. Nicks, director of lunar and planetary programs for NASA's Office of Space Science and Applications in Washington, in a letter to Robert H. Gray, NASA's assistant director for unmanned launch operations at Kennedy Space Center, also asked that "sincere appreciation" be expressed to the launch operations team for the "fine start given" to Lunar Orbiter 1.

"We were elated at the flawless performance of the Atlas-Agena," he said.

Jim Von der Wische, Convair program manager for NASA SLV-3 programs, has termed both the Atlas launch and the Lunar Orbiter mission a "fabulous success." Velocity of the Atlas was within ½ of a foot per second of that desired.

Lunar Orbiter 1 responded to 2,860 commands in completing taking of photographs during its first 108 orbits of the moon in a 20-day period after launch.

Jet Propulsion Laboratory officials said first photos taken with the Orbiter's high resolution camera from an altitude of about 900 miles and transmitted to Deep Space Instrumentation Facility (DSIF) stations showed an array of craters and interesting fault lines and surface irregularities.

The first photo released to the public was a composite from 20 photographic frames. It covered a 59 by 92-mile area at the western edge of Mare Smythii and showed one crater about 18 miles in diameter with a central peak.

First photo of the earth recorded from the lunar distance was taken Aug. 23 and "read out" Aug. 25 at the SDIF station at Madrid, Spain. Made with the spacecraft camera rotated 180 degrees, it pictured the earth as it would be seen by astronauts emerging from "behind the moon."

Lunar Orbiter 1 is to continue transmission of environmental and performance data for a full year.

Convair's Atlas SLV-3 No. 5802, booster for Lunar Orbiter 2, has been erected at Complex 13 at the Eastern Test Range for checkout and launch later this year.

500th Atlas Leaves San Diego Factory

Convair division's 500th Atlas was rolled out at ceremonies last Friday (Sept. 16) at the Kearny Mesa plant.

Dr. George E. Mueller, associate administrator of NASA's Office of Manned Space Flight, and Brig. Gen. Paul T. Cooper, commander of the Air Force Space Systems Division, were among officials present for the ceremony.

NASA Centaur Mgr. Honored

R. D. "Duff" Ginter, Centaur project manager for NASA's Office of Space Science and Applications for the past two years, will become director of a new Space Flight Program Division under NASA's Office of Advanced Research and Technology. Appointment is effective Oct. 15.

Ginter visited Convair division's Kearny Mesa plant last week and was presented a surprise documentary film on Centaur launches by Launch Vehicle Programs officials at a dinner in his honor in the Cuyamaca Club.

The film was titled "Space Epic —starring Duff Ginter" and was credited with having been "produced by Hansen's Hoods." Sounds of explosions accompanied the introduction.

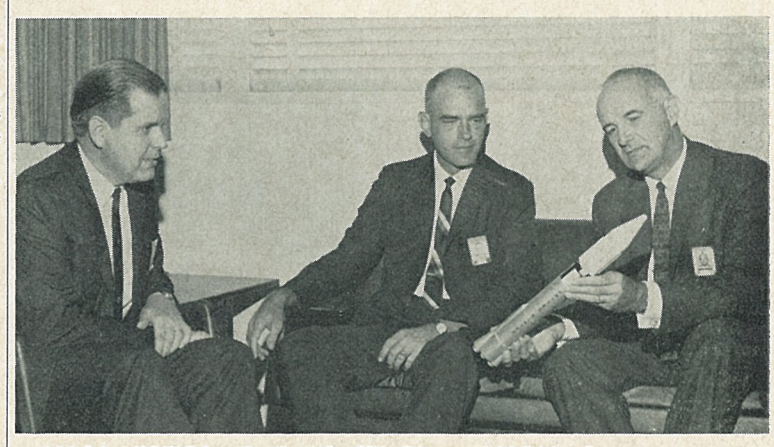
Film clips included in the "production" included a filmed interview with Ginter at Cape Kennedy after the Atlas-Centaur 6 flight in which he declared Centaur operational for single-burn capability and ready for Surveyor launch missions.

During his visit, Ginter predicted Centaur will have "a good long-term future."

"A high-energy stage such as Centaur will be required throughout the foreseeable future," he said.

Ginter commented, however,

(Continued on Page 2)



NASA VISITOR—R. D. "Duff" Ginter, NASA's Centaur program manager, center, discusses Centaur plans during recent visit to Convair division's Kearny Mesa plant with Grant L. Hansen, left, vice president-launch vehicle programs, and Jack L. Bowers, division general manager. Ginter heads new Space Flight Programs Division under NASA's Office of Advanced Research and Development.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between Sept. 15 and Sept. 30.

Thirty-year: Dept. 116-0, L. G. Granstedt; Dept. 170-2, C. H. Hahn; Dept. 566-2, W. B. Summers; Dept. 972-0, Michael Brooks.

Twenty-five-year: Dept. 001-0, J. Comba, G. W. Oliver, W. A. Swanson; Dept. 015-0, L. E. Roth, T. O. Sather; Dept. 024-0, G. R. Simpson; Dept. 031-0, H. J. Liggett, C. W. Pharis; Dept. 041-0, R. M. East, F. A. Gordon Jr., E. Hofmann; Dept. 045-0, E. E. Miller; Dept. 059-3, C. J. Rudeen; Dept. 130-1, M. T. Davis, J. J. Gaskins; Dept. 130-3, M. B. Peterson; Dept. 142-1, L. L. Tremble; Dept. 149-0, B. E. Mundt; Dept. 149-4, G. D. Hansen; Dept. 195-4, L. D. Fouche; Dept. 250-0, L. E. Ford; Dept. 250-2, E. E. Larsen; Dept. 250-3, W. E. Gille; Dept. 401-4, A. J. Signorelli; Dept. 403-3, F. F. Hammond; Dept. 420-6, V. J. Shandera; Dept. 420-9, I. K. Raney; Dept. 460-0, T. G. Graves; Dept. 491-0, J. R. Leadaman; Dept. 818-2, A. B. Mercer; Dept. 979-4, A. N. Mesiere; Dept. 985-1, W. J. DeConcini.

Twenty-year: Dept. 102-2, A. B. Breslauer; Dept. 131-4, M. V. Clark; Dept. 420-9, G. R. Vollmer Jr.; Dept. 491-0, R. D. Bush; Dept. 575-4, L. E. Pilling; Dept. 700-0, J. C. Leisure; Dept. 756-0, H. D. Prince; Dept. 817-0, L. H. Morris; Dept. 835-5, J. G. Gonzalez; Dept. 987-0, P. Molis.

Fifteen-year: Dept. 015-0, L. E. Voosen; Dept. 146-4, K. E. LaMotte; Dept. 170-1, P. R. Yates; Dept. 170-9, A. A. Wicks; Dept. 195-6, J. E. Riley; Dept. 250-5, R. F. Garcia; Dept. 400-3, P. B. Holloway; Dept. 511-1, H. S. Arneson; Dept. 524-0, M. R. Gengler; Dept. 524-3, D. M. Wicks; Dept. 543-4, W. F. Riggle; Dept. 566-3, R. L. Cantarini; Dept. 590-0, R. C. Armstrong; Dept. 591-0, V. J. Baros.

Dept. 744-0, J. C. Scott; Dept. 816-3, E. H. Amory Jr.; Dept. 819-0, H. P. Miller, W. R. Smith; Dept. 832-1, R. W. Landis; Dept. 845-5, J. S. Thompson; Dept. 955-0, H. A. Lambert; Dept. 957-0, G. E. Briggs, E. J. Bryant; Dept. 963-8, L. S. DeSoto; Dept. 985-1, L. F. Everett, D. N. Herklotz, G. J. Lutz; Dept. 985-4, J. D. Johnson

Ten-year: Dept. 001-0, E. H. Hussong; Dept. 015-0, L. D. Cyr, R. A. Gess; Dept. 057-0, V. A. Lauritzen; Dept. 058-0, W. R. Boughey; Dept. 059-0, R. E. Monce; Dept. 101-6, S. A. Bowers; Dept. 111-0, A. T. Anderson; Dept. 113-0, R. L. Hayes, J. F. Mellett; Dept. 130-1, J. V. DePauli, J. B. Harrison, R. L. Robertson; Dept. 142-1, A. L. Nooe, W. Ortiz, E. W. Wine; Dept. 143-1, R. L. Sanchez; Dept. 143-5, O. N. Edmunds; Dept. 193-1, A. F. Talmadge; Dept. 250-1, R. F. Lee; Dept. 300-3, P. P. Balistreri; Dept. 401-6, R. J. Marino; Dept. 410-0, E. Wilson; Dept. 454-0, J. De Groot; Dept. 507-0, W. H. Lowe.

Dept. 511-1, W. R. Chapman; Dept. 532-1, H. L. Frisbie; Dept, 543-5, R. F. Kosic; Dept. 551-2, R. L. Shoff; Dept. 565-1, J. C. Butler; Dept. 572-4, E. W. Gross; Dept. 574-1, D. E. Cornwall, W. G. Donahoo; Dept. 596-0, T. F. Kramer; Dept. 733-0, M. R. Crawford, H. G. Kapp, W. J. Mars, J. H. Metzgar; Dept. 744-0, L. Pajak, A. A. Rocha; Dept. 756-0, S. V. Costa; Dept. 780-0, J. M. Farrar; Dept. 780-2, M. W. Zink; Dept. 780-3, B. M. Taunton; Dept. 832-3, M. W. Ellison, D. H. Smith Jr., C. Z. Sumpter; Dept. 833-1, J. E. Lyons; Dept. 850-1, K. S. Decker; Dept. 951-8, D. A. Seabaugh.

Dept. 953-1, W. S. Mears; Dept. 954-1, J. F. White; Dept. 954-2, P. I. Neuenswander; Dept. 955-0, J. H. Edwards, J. Wedeking; Dept. 957-2, F. W. Blanchard; Dept. 958-7, J. S. Cruzan; Dept. 963-3, D. N. Mareen; Dept. 963-8, E. A. Foland Jr.; Dept. 964-2, G. P. Woods; Dept. 966-0, L. F. Buss Jr.; Dept. 966-9, L. M. Figueroa; Dept. 970-1, N. E. Moyer; Dept. 978-1, J. D. Jones; Dept. 979-3, D. L. Olson; Dept. 984-2, D. C. Valkema; Dept. 987-0, D. D. Ash.

STROMBERG-CARLSON

Twenty-five-year: Dept. 8620, Lois P. Cumberledge.

Ten-year: Dept. 8530, P. C. Sherertz; Dept. 8621, J. T. Lopez.

Papers Presented

CONVAIR

ARMSTRONG—R. C., Dept. 592-0. "Bioengineering Constraints on Manned Systems Design," UCLA/Engineering Aspects of Space Medicine, Los Angeles, Calif., Aug. 29.

GETLINE—G. L. and E. C. KAMPS, Dept. 585-3. "A Design Concept for Flow Limited Sonar Domes," AIAA, USN/Marine Systems and ASW Meeting, Los Angeles, Calif., Aug. 8-10.

ROTHE—E. W., Dept. 596-0. "Potential Energy Measurements Using Molecular Beam Experiments," United Technology Center & Stanford University, 7th Annual Contractors Meeting on Chemical Kinetics of Propulsion, Stanford, Calif., Aug. 11-12.

Personals

CONVAIR

The family of Irene M. Parker, retired from Convair, wish to express their sincere appreciation to her Convair friends for the flowers and expressions of sympathy at her death.

Deaths

CONVAIR

LA POINTE—Armond, Dept. 744-0. Died Aug. 26. Survivors include wife, Loretta.

SMITH—B. A., Dept. 512-2. Died Sept. 11. Survivors include wife, Catherine Vernice.

General Dynamics News

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Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

Awards

CONVAIR

Employe Suggestion awards approved for the week ending Aug. 26.

Dept. 015, K. L. Jewel; Dept. 019, W. A. Rasp; Dept. 123, G. Tompkins, S. M. Trepanier; Dept. 140, R. D. Williams; Dept. 143, F. W. Haywood, R. R. Reekers; Dept. 146, E. Y. Martindale; Dept. 681, C. F. Jacobs; Dept. 759, G. D. Lundquist; Dept. 816, L. H. Barber, M. A. Grove; Dept. 819, G. L. Sandoval; Dept. 832, R. A. Izzarelli; Dept. 972, A. J. Augustenborg; Dept. 973, L. Mazon; Dept. 979, J. A. Knight; Dept. 985, R. D. Barr, C. M. Flores.

Employe Suggestion awards approved for the week ending Sept. 2.

Dept. 015, F. E. Slayton; Dept. 141, M. E. Jensen, S. R. Locke; Dept. 250, W. Russ; Dept. 401, R. Taylor; Dept. 460, H. H. Betts; Dept. 732, G. A. Barkdull; Dept. 733, M. R. Crawford; Dept. 756, H. O. Kuntze; Dept. 845, M. G. Collier; Dept. 850, E. J. Ward; Dept. 957, J. A. Madden; Dept. 985, H. Buckner, L. G. Thompson; Dept. 989, B. K. Williams.

Invention Disclosures

CONVAIR

DICKENS—R. D., Dept. 578-4. Solid State Latching Switch. Solid State D. C. Circuit Breaker. Frequency Sensor.

PERKINS—C. K., Dept. 967-2. Capillary Accelerometer.

WRENCH—E. H., Dept. 596-0. Vertistat Yaw Orientation Reverser.

In-Plant Training

ORIENTATION

NEW EMPLOYEES—Educational services staff, Lindbergh Field, ext. 491, Bldg. 14 auditorium, Tuesday, Oct. 4, 8 a.m.; Oct. 11, 4:30 p.m. Kearny Mesa, ext. 1931, Bldg. 17, Room 7, Monday, Oct. 3, 8 a.m.; Oct. 17, 8 a.m.

PROFESSIONAL/TECHNICAL

RELIABLE ELECTRICAL CONNECTIONS — Educational services staff. For further information and quota call ext. 1931, Kearny Mesa.

PROGRAMMED SELF-STUDY—A limited number of programmed texts in accounting, computer language, English, shorthand, electronics, electricity, instrumentation, management, mathematics, machine programming, statistics, and value engineering are available in the educational services office, Bldg. 17, Kearny Mesa. These may be checked out for home study. Office hours are from 8 a.m. to 5 p.m., ext. 1931 KM.

AFTER HOURS CLASSES

CRYOGENIC ENGINEERING—K. E. Leonhard, instructor. Begins Sept. 21. Wednesdays, 5-8 p.m., Bldg. 17, Room 7, Kearny Mesa. Prerequisites: 3 years toward a BS degree or 5 years applied engineering experience.

San Diego State College Extension

FALL SEMESTER—Classes begin the week of Sept. 19 with registration on first class meeting night. All classes will be in Bldg. 17, Kearny Mesa. Courses are: fluid mechanics, Wednesdays, 5-7:30 p.m., Room 2; structural analysis I, Tuesdays, 5-7 p.m., Room 2; AISC manual design usage, Mondays, 5-7 p.m., Room 8. For information call Dick Forrest, ext. 1931 KM.

University of Calif. Extension

FALL SEMESTER — Classes begin week of Sept. 26 with registration at first class meeting. All classes will be in Bldg. 17 Kearny Mesa. Courses are: computer programming, Thursdays, 5-8 p.m., Room 7; EDP economic feasibility studies, Mondays, 5-8 p.m., Room 7; introduction to operations research, Tuesdays, 5-8 p.m., Room 8. For information call Warren Newton, ext. 3276 KM.

Retirements

CONVAIR

AMBRUSTER—S. H., Dept. 362-4. Seniority date Aug. 14, 1958, retired May 15.

BROWN—Hoyt, M., Dept. 002-0. Seniority date Feb. 10, 1958, retired Aug. 31.

CHERRY—William K., Dept. 999-0. Seniority date Sept. 8, 1955, retired Aug. 28.

HALSETH—Alfred, Dept. 142-2. Seniority date May 9, 1956, retired April 16.

HENRY—Alonzo W., Dept. 24-0. Seniority date Dec. 16, 1941, retired Aug. 31.

HUGHES—Earl T., Dept. 978-3. Seniority date Feb. 12, 1942, retired Aug. 31.

LUCAS—O. L., Dept. 509-1. Seniority date April 10, 1956, retired April 16.

MELLEN—Hugh F., Dept. 835-3. Seniority date June 22, 1953, retired Aug. 30.

OLIVER—Paul R., Dept. 780-1. Seniority date April 6, 1956, retired May 17.

PIXLER—Delvert, Dept. 731. Seniority date Dec. 8, 1958, retired Aug. 19.

THOMAS—Hiram, Dept. 143-1. Seniority date Jan. 30, 1961, retired July 7.

WHAYNE—Jess C., Dept. 425-3. Seniority date Sept. 28, 1959, retired July 10.

WILLIAMS—Ernest L., Dept. 015-0. Seniority date Dec. 17, 1956, retired June 19.

'Cirgarette Smoking' Workshop Scheduled

Convair's chief safety engineer, Jack Garrison, will preside at the "Cigarette Smoking" workshop of San Diego County's first Heart-in-Industry program Sept. 29 at Kona Kai Club.

Frank W. Baker, California Workmen's Compensation Appeals Board referee and program chairman, said that the program is in response to the growing national concern about the tremendous economic losses caused by heart diseases.

"Is Management Looking at Its Heart Problem?" will be topic of Dean Anderson, Pacific Telephone and Telegraph Co. Dr. Meyer Friedman, director of Mount Zion Hospital's Cardiovascular Research Institute, will talk on "The Role of Behavior Pattern in Coronary Diseases."

Atlas Launch Again Perfect For Gemini At Cape Kennedy

(Continued from Page 1)

Richard W. Keehn, Atlas SLV manager; Eugene R. McFadden, program manager for Gemini target vehicle, and L. E. Lightbown, launch vehicle programs chief design engineer.

"I'm proud of Convair's record in the Gemini program," Bowers said. "It is an indication of the caliber of people assigned to the program and of the pride we have all taken in participating in a program of national significance."

Gemini 11's mission included flying formation with the Agena and Gemini spacecraft linked by a 100-foot tether.

The first-orbit rendezvous and docking in some aspects simulated a maneuver that will be required in Project Apollo flights when astronauts in the upper stage of the lunar excursion module return to the Apollo spacecraft as it orbits the moon.

Atlas SLV-3 No. 5307, booster vehicle for the Gemini 12 mission and the 500th Atlas built by Convair division, was to be delivered to ETR this week. The Gemini 12 mission will be the last in the Gemini series.

NASA Centaur Mgr. Honored

(Continued from Page 1)

that "high production rates" of space vehicles such as have been experienced in the past "are not in the foreseeable future."

Ginter has been with NASA since 1960 and previously served as program manager for the Scout and Delta and other programs.

Among officials attending the dinner in Ginter's honor were Grant L. Hansen, vice president-launch vehicle programs; Ronald Rovinger, NASA resident manager at Kearny Mesa; Deane Davis, Convair's Centaur program manager; and Andrew Kalitinsky, assistant program manager-launch vehicle programs engineering.

Nine Charities Voted $6,550 by Con-Trib

Nine charitable organizations were voted donations totaling $6,550 by the Convair Employes' Con-Trib-Club at the Sept. 1 committee meeting.

The United Givers Fund of Huntsville and Madison County, Ala., received $300 upon recommendation of Convair employes of the Huntsville Office.

San Diego United Community Services was voted $750 for a 16-mm projector for use in fund raising.

Groups getting funds for general expenses were: Christian Businessmen's Service Center, $500; Nazareth House, $1,500; Neighborhood House, $1,000; Pastoral Counseling Service, $500; St. Vincent DePaul Society, $500.

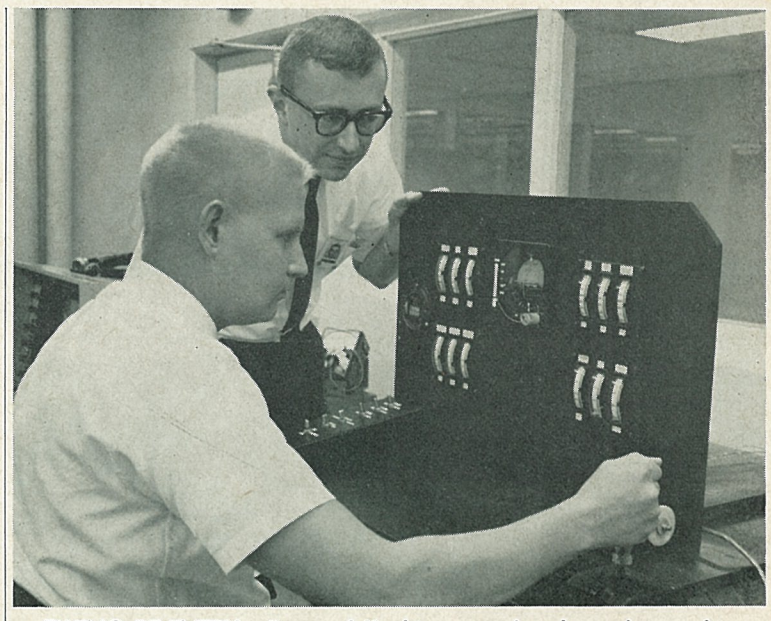
The Salvation Army was granted $1,000, half to go to the Senior Citizens Lounge for operating expense, and $500 to the Men's Rehabilitation Center for recreation equipment. Edgemoor Geriatric Hospital received $500 to be applied toward purchase of a color television set.

Four Will Instruct At City College

Four college level courses, all in the material operations field, will be taught by Convair men at San Diego City College during the fall semester.

W. C. Buxton, chief of Lindbergh Field material operations, is instructing "Government Contracts."

Nick Kosmas, senior buyer, is teaching "Introduction to Purchasing"; M. E. Kemme, buyer, "Salesmanship"; and T. N. Houk, technical buyer, "Material Control." All are in Dept. 847-1, Lindbergh Field material operations.



FLYING RE-ENTRY—Bernard Kuchta, a senior dynamics engineer, Dept. 585-3, uses cockpit instrumentation panel linked with Convair's new hybrid computer system in simulated flight of manned re-entry vehicle. Looking on is Robert Ring, a senior guidance analysis engineer, Dept. 586-2.

'Flights' of Re-entry Vehicles Simulated With New Computer

(Continued from Page 1)

ing a single button, the problem can be "frozen" for a detailed print-out.

Actual manned flight simulation has been made possible by linking instrumentation on a re-entry vehicle-type cockpit to the analog and digital computers in the hybrid system.

S. O. Atwood, a senior electronics engineer, Dept. 591-0, built the cockpit which utilizes an aircraft "Q ball" to show bank angle and pitch attitude.

The cockpit has dials showing deflections of the vehicle aerodynamic surfaces, dynamic pressure, yaw, side slip angle, roll attitude, pitch attitude, angle of attack, altitude, mach number and velocity. The vehicle "flight" can be controlled manually by the "pilot" or by computer autopilot.

The cockpit and hybrid computer system also may be linked to Convair division's Integrated Manned Systems Simulator to provide realistic out-of-the-window viewing of terrain at various altitudes for the "pilot" as he descends for simulated landing at Edwards AFB, Calif.

"This is one way you can 'crack up' or 'burn up' a multi-million dollar manned vehicle before it has been built and without loss," Kuchta commented.

Robert L. Limes, a senior research engineer, Dept. 591-0, wrote system routines for intercommunication between the analog and digital computer hardware for the hybrid studies.

Six From General Dynamics On Naval Reserve Faculty

Six General Dynamics employes are serving as instructors for courses being offered by Naval Reserve Officers' School 11-2 in San Diego for reserve officers of all branches of the military services.

Lt. Cdr. Carlos A. Richardson Jr., USNR, a flight test engineer in Convair Dept. 951-4, is teaching "Naval Aviation," Col. Gerald D. Schmidt, USMCR, a program analyst for Convair Dept. 194-0, is teaching "Counter Insurgency" and Lt. Cdr. George T. Schnurer, USNR, a research staff member for General Atomic division, is teaching "Fundamentals of Science."

Lt. Cdr. Richard G. Stoklosa, USNR, a design engineer for Convair Dept. 962-5, is teaching "Program Evaluation and Review Techniques" and Lt. Cdr. Emory Thurston Jr., USNR, an educational specialist with Convair Dept. 130-3, is teaching "Leadership."

Cdr. Richard G. Wilson, USNR, a revenue management coordinator for Convair Dept. 196-0, is teaching a pilot course on "System Project Management" based on Department of Defense and U. S. Air Force management concepts and documents.

The courses began Sept. 8 but reserve officers may enroll in the classes through next week. Classes taught by the General Dynamics employes meet at 7:30 p.m. Thursdays at the Naval Reserve Training Center on Harbor Drive, except that taught by Schnurer which meets Wednesdays at Hilltop High School in Chula Vista.

Other courses offered by the school also are being taught at Palomar College, Grossmont High School and Coronado High School. Information can be obtained from YN1 John T. Scott by phoning 222-6411, ext. 387.

Cdr. Ross A. Evans, USNR, manager of personnel administration for Convair, is commanding officer of the Naval Reserve Officers' School.

Cryogenic Course Starting In-Plant

An after-hours in-plant course in Cryogenic Engineering starts this evening, Sept. 21, under sponsorship of Convair educational services.

K. E. Leonhard, Dept. 584-2 design specialist, will instruct the course each Wednesday from 5 to 8 p.m. in Kearny Mesa Bldg. 17, Classroom 7. Those registering must have a minimum of three years toward a BS degree or five years experience in applied engineering.

Subject material will cover history and theory of practical cryogenic engineering, gas cooling cycles and fundamental thermodynamics separation and liquefication of gases, theory and production methods; heat transfer, thermodynamics, insulations; properties of cryogens and safety hazards; storage, transportation and transfer systems; design of cryogenic tankage and plumbing.

Leonhard may be reached at KM ext. 2448 for information.

Discount Offered On Racing Tickets

Discount coupons for the third annual San Diego Cup Races for unlimited hydroplanes tomorrow through Sunday (Sept. 22-25) at Mission Bay are now available for General Dynamics families at Convair, Electronics-SD, and Stromberg Carlson employe services outlets, CRA Clubhouse, and the Bldg. 51 engineering mailroom at Lindbergh Field.

The coupons may be taken or mailed to Mission Bay Associates headquarters, 1702 E. Mission Bay Dr., for ticket purchases. Discount tickets for the four days of racing are $1.60 for adults and 40 cents for children.

People Mobility

Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

TOM G. CROFT (1950) from Fort Worth division to Corporate Headquarters industrial relations staff; **EDWARD L. BALL JR.** (1955) from Fort Worth to Corporate Headquarters, staff of E. H. Heinemann, vice president-engineering and program development; **JOE MUNRO** (1956) from Electric Boat to Corporate industrial relations staff in personnel placement; **THOMAS R. DAUGHERTY** (1951) from Convair to FDL project, Electric Boat; **JOHN F. LOOS** (1956) from Convair to General Atomic; **GEORGE H. WOODBERRY** (1941) from Convair to 111 logistic support, Fort Worth; **JACK E. KAY** (1950) from Convair to Fort Worth; **CECIL O. BYARLAY** (1946) from Convair to Fort Worth; **MARVIN G. FAIN** (1950) from Convair to Fort Worth; **JOHN P. RIMER** (1954) from Corporate Headquarters to Convair as engineering staff specialist; **JOHN W. BUCK** (1959) from Convair to Fort Worth as senior structures engineer; **BLUCH W. KAHLA** (1949) from Stromberg-Carlson, Rochester to Quincy as manager of management engineering; **HARRY E. JOHNSON** (1962) from Stromberg-Carlson, Rochester to Liquid Carbonic; **JOHN H. WIESTNER** (1954) from Stromberg-Carlson, Rochester to Fort Worth; **W. C. WILHELM** (1959) from Canadair to supervisor of source inspection and supplier control, Pomona; **MELVIN McCLAWS** (1956) from Convair to Pomona; **I. S. BUCKLER** (1951) from Canadair to Pomona; **DAVE MURRAY** from Corporate Headquarters to Stromberg-Carlson.

Bicyclists Mapping Point Loma Tour

CRA bicyclists have two tours planned for the near future. They will tour Point Loma on Sept. 24 and follow on Oct. 8 with an easy 25-mile ride in the El Monte Park area.

Riders will meet at 8:30 a.m. this coming Saturday in front of Bali Hai Restaurant on Shelter Island. They will ride out to Cabrillo Monument and return by way of California Western University, Sunset Cliffs, the new San Diego Fishing Pier, and Ocean Beach. Ron Kygar, KM ext. 3075, is tour leader.

Bob Williams of Electronics, ext. 1391 LF, will lead the El Monte trip on Oct. 8. Members will meet at 9 a.m. at Grossmont Junior College parking lot, at the end of Lake Murray Blvd.

Oct. 3 Deadline Set For Lake Tahoe Trip

Oct. 3 is the deadline for signing for the weekend trip to Lake Tahoe, arranged by CRA for General Dynamics vacationers.

Trip dates are Nov. 4 to 6. Cost of transportation by air and two nights hotel accommodations at the Sahara Hotel is $72. For those who wish a Saturday dinner show and Sunday brunch included, price will be $10 more, or $82 total.

Reservations may be made at Convair, Stromberg-Carlson, and Electronics employe services outlets, CRA Clubhouse, and Lindbergh Field engineering mailroom, Bldg. 51. Full amount of trip must be paid by the Oct. 3 deadline date.

Ballroom Dancing Classes Still Open

Last chance to sign for CRA beginning classes in ballroom dancing will be next Monday (Sept. 26).

First session of the new fall series was this week, but Commissioner Royce Riggan said that enrollment will remain open for another week.

The beginning class will be Monday nights for 12 weeks in the CRA Clubhouse auditorium at 7 p.m. An intermediate class is held the same night at 8:45 p.m. Cost for either course is $18 per couple. Call Riggan, ext. 1018 LF, for information.

Interested in Color Photos of A Launch?

Color 8 x 10-inch photos of the Atlas-Centaur 10 launch will be made available for Convair division employes through employe services outlets, including those at the Eastern and Western Test Ranges, for $1 each if interest warrants.

A minimum of 100 prints must be ordered. Interested employes are to leave their name, mail zone and $1 deposit at employe services by Oct. 5.

Bonair Booklet Lists Members

Bonair Flying Club has produced a new booklet listing its members and bylaws and including a summary of other flying clubs in the San Diego area with the types of aircraft and operating costs of each.

Employes wishing a copy may phone Lee Chastain, club president and presently acting commissioner, at KM ext. 2055, or Nancy Vinson, corresponding secretary, at KM ext. 838.

Prospective club members are invited to attend meetings at 7:30 p.m. the first Tuesday each month in the CRA Clubhouse.

Chastain said more than 30 General Dynamics people have enrolled for two 14-week aviation ground school courses that began last week at Midway Evening Adult School under the city schools' adult education program.

An instrument commercial ground course is being given Wednesday evenings and an aviation ground school course Thursday evenings. Both classes meet from 6:30 to 9:30 p.m. and enrollment is still open.

Kenneth Morgan of Electronics-SD, a member of Bonair Flyers, is instructor for both classes. He has over 3,500 hours and is an FAA-rated ground instructor, flight instructor and instrument flight instructor.

Chastain is serving as acting commissioner for the flying club while Commissioner Glen Hemphill is on temporary assignment at Quincy division.

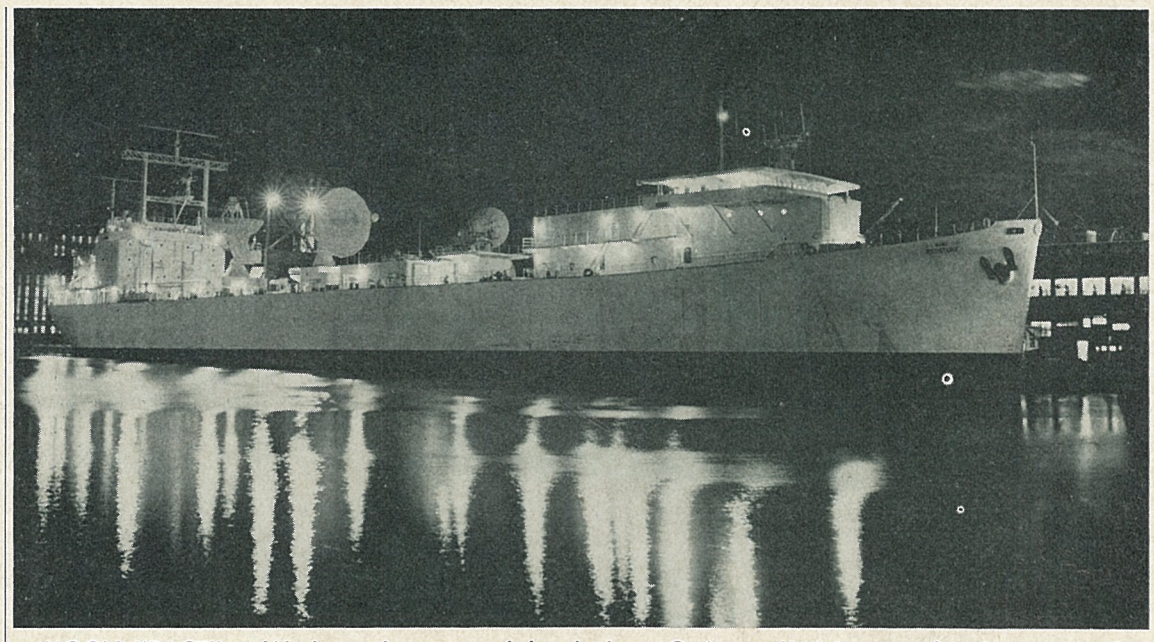
SAE to Sponsor Coast Gathering

Over a dozen General Dynamics men will take an active part in the 1966 National Aeronautic and Space Engineering and Manufacturing meeting sponsored by the Society of Automotive Engineers in Los Angeles, Oct. 3-7.

G. E. Sylvester, vice president - operations at Pomona division, is general chairman of the executive committee for the Manufacturing Forum. E. D. Bryant, Convair vice president - operations, serves as a member of the same committee.

W. W. Withee, Convair deputy program director of advanced ICBM test, deployment, and program control, is a member of the Aeronautic Meeting's program planning committee.

Convair men who are chairing specific sessions or presenting papers include: Abraham Hurlich, Michael Dublin, J. F. Fischer, D. J. Peery, S. H. Myhre, J. H. Rusk Jr., R. E. Martin, B. Blutinger, D. R. Archibald, J. B. Hurt, J. C. Duffy, G. A. Grossaint, G. J. Langford, and R. N. Babcock.



MOON "RACE" —Work continues round-the-clock at Quincy division so that instrumentation ships will be ready for Project Apollo. They are designed to track and communicate with astronauts during manned moon missions. Shown is USNS Redstone, which will be deployed in Indian Ocean.

Convair Follows Fort Worth, EB With Modern Drafting Machine

Convair division's first numerically-controlled drafting machine, installed late last month in Bldg. 54A at the Lindbergh Field plant, is now in production preparing accurate engineering lines layouts and drawings of detail parts for the C-5 program.

The advanced drafting equipment, a Gerber Scientific Instrument Co. Series 1000, is only the second one of its kind to be placed in use by a General Dynamics division. Fort Worth division installed one about a year ago. Electric Boat also uses numerically-controlled drafting equipment made by another manufacturer.

The machine is controlled by keypunched tape, prepared by processing through the scientific computing system or prepared on a Flexowriter, or can be operated by manual controls on the control console.

Span time between design conception and completed drawings will be cut drastically, W. J. Wood, supervisor of the engineering lines and loft group (Dept. 566-1), said. In fact, after control tapes were completed for the leading edge of the C-5 horizontal stabilizer, it took only 28 minutes to make the drawing. By conventional drafting methods—setting up coordinate points and splining and scribing lines manually—it would have taken 100 hours!

Once the master control tape is prepared, in this instance, the 54 basic lines for the horizontal stabilizer's leading edge, the same tape can be used for drawings of each individual detail rib.

Accuracy is within plus or minus .005 of an inch.

A television camera on the control console can be used to take information from existing drawings or layouts and reproduce it automatically onto tape, which can be reproduced in any scale, up to ten times the size of the original. Also, by use of television, accurate dimensions can be established from undimensioned drawings.

Although the equipment is going into immediate use for drafting C-5 parts, it will be used eventually to verify all machine milling tapes in the shop, Wood said. Tapes prepared for the numerically-controlled milling machines will be run through the new drafting machine which will reproduce lines representing cutter paths to proof the tapes for accuracy with engineering drawings before they are used in fabrication of parts.

Proofing of the tapes on the drafting machine will save a great deal of shop time and material. Heretofore, actual parts, either of metal or styrofoam, were cut to check out milling machine tapes before production. Also, all data prepared for drafting machine tapes can be used in preparation of milling machine tapes.

The new drafting equipment will be used to scribe metal templates for making plaster patterns, and studies are now in progress on future use of the machine to prepare circuitry diagrams and electronic drawings.

"Possible applications of the new equipment are practically unlimited," Wood said. "In fact, we can't, at this time, project all of the uses which may be found for it in the future. Any department feeling that the equipment can be used to improve the efficiency of its operations is urged to contact me at extension 1450, Lindbergh Field plant."

Engineering lines and loft prepares and writes programs for the equipment with an assist from computer personnel and Roland Hagar, Convair's APT (Automatically Programmed Tool) coordinator. APT is a program of the Aerospace Industries Association to standardize member companies' computer programs.

A special training class in numerically-controlled programming was conducted earlier this year by Dick Schweitzer of Dept. 400-1 under sponsorship of educational services to train programmers for the new activity.

GD EXPERTS APPEAR AT FAR-FLUNG POINTS ON LECTURE TOUR

Fort Worth division experts ranged far afield—including Mexico City—on the lecture circuit last month.

Drs. B. C. Deaton and D. M. Gibson Jr., staff scientists in the division's applied research section, appeared before a joint conference of the American Physical Society and the Mexican and Canadian Physical Societies in Mexico City.

Dr. Gibson's paper was "An Experimental Study of Hydromagnetic Ionizing Waves." Dr. Deaton spoke on "Anomalous Ultrasonic Attenuation in Pure Superconducting Pb."

At a meeting of American Institute of Aeronautics and Astronautics in Houston, C. R. Sierra made a presentation on the "F-111 Crew Escape System." Sierra is design group engineer for the unique escape system.

B. B. Shuffler, Dept. 060-2, appeared before a meeting of the committee on section affairs, Institute of Electrical and Electronic Engineering, in Los Angeles.

Be sure to use the ZIP code when addressing mail. It speeds up delivery!

EB's Joe Munro Joins Corporate IR Staff

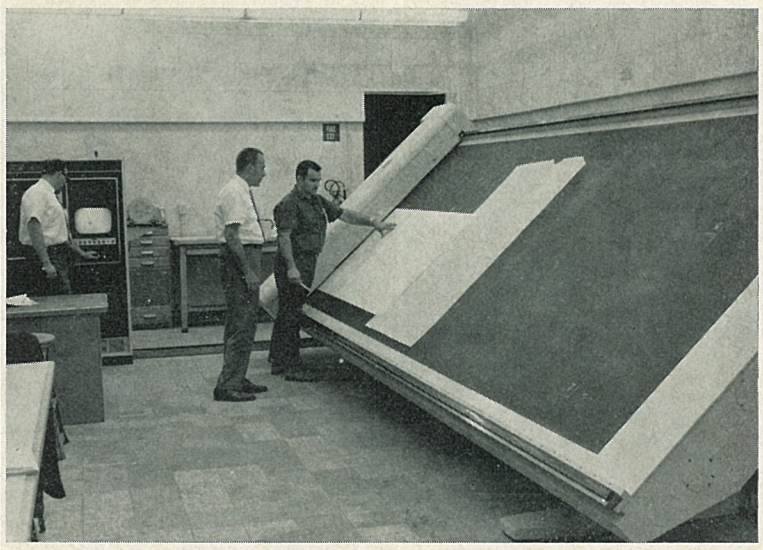
Joe Munro of Electric Boat has transferred to Corporate Headquarters to the industrial relations staff, personnel placement.



Joe Munro

Munro graduated from Brown University in 1952 with a BS in physics and received his MS from University of Rhode Island in 1960. During a three-and-a-half-year Navy career he worked on a number of underwater sound and communication projects and joined Electric Boat in 1956 as an electrical engineer.

He has held various positions in engineering and administration at EB, including the last three and a half years as salary administrator.



NEW DRAFTING EQUIPMENT—Convair's W. J. Wood (center), Dept. 566-1 supervisor, and Dominic Carini, design drafting programmer, check drawing on tilted bed of new numerically-controlled drafting machine installed last month. Ron Ainsworth, also design drafting programmer, is at closed circuit television screen on control console. Bed is 8 ft. wide, 15 ft. long and can be adjusted from horizontal to vertical position for convenience of operators.



NEW APPRENTICES—Nine young men entering Convair four-year apprenticeship program this month are (from left, along rail) R. J. Bordelon, R. L. Broadstone, Amos Todd Jr., W. L. Cullom, W. K. Marks Jr., R. H. Rademaker; in back row, R. E. Ratcliff, Don Nowicki, and R. L. Pinney. They are receiving on-job training and taking formal classes at SD City College.

Nine New Apprentices Enter Division Four-Year Program

Nine new apprentices entered Convair's four-year program the first of this month. The nine, first to be drawn into the division's apprenticeship program since late 1964, join 10 others already in the program.

Eight of the young men are in the tooling or machinist classifications and presently are taking a two-week specialized tooling course in the vestibule school at Lindbergh Field plant. The other apprentice is taking his training in electronics and is assigned to the low speed wind tunnel, also at Lindbergh Field.

They all will take formal courses at San Diego City College to supplement their on-the-job training during the four years they are working for journeymen's certificates.

New apprentices and departments to which they are assigned are: R. J. Bordelon, Dept. 452-0; R. L. Broadstone, Dept. 401-4; W. K. Marks Jr., Dept. 451-0; W. L. McCollum, Dept. 015-0; R. L. Pinney and K. H. Rademaker, both Dept. 401-4; T. E. Ratcliff, Dept. 731-0; Amos Todd Jr., Dept. 015-0; Don Nowicki, Dept. 507-0.

The apprenticeship program is administered by educational services with Wayne Turner and Harry Miller, training specialists, coordinating.

Management Club to Sponsor Series of Classes at LF and KM

National Management Association courses in "Principles of Managing" and "Issues in Modern Management" will be offered by Convair Management Club on Thursdays beginning next week (Sept. 29).

"Principles of Managing" will be offered in the Bldg. 2 presentation room at Kearny Mesa from 6 to 8 a.m. with W. F. Chana as discussion leader and in Bldg. 14, classroom 8, at Lindbergh Field from 4:45 to 6:45 p.m. with Jack Hurt as discussion leader. Both classes will run through Dec. 8.

The "Issues in Modern Management" course will be offered (for students who have completed "Principles of Managing") from 6 to 8 a.m. through Nov. 3 in the executive dining room at Kearny Mesa. A. H. Rambeau will be discussion leader.

Robert Montague, management development and education chairman for the Management Club, said "Issues in Modern Management" also will be offered at Lindbergh Field after the "Principles of Managing" course now scheduled there has been completed.

There will be no charge for the two courses but textbook deposits of $4 for the "Principles of Managing" text and $3 for the "Issues in Modern Management" text will be required. The deposit will be refunded at completion of the course if the student does not wish to retain the book.

John Magill of educational services will serve as curriculum coordinator; Paul Ferrara, director of engineering administration, has volunteered to serve as technical subjects adviser; and Robert M. Williams, last year's education chairman, is consultant.

Doris Parker is committee representative at Lindbergh Field, George Conrey, test lab group engineer, will assist with human relations courses and Keith G. Blair, library supervisor, will handle management information publications.

Club members who have had recent mail zone changes and are not receiving club bulletins have been asked to phone new mail zone numbers to Elena at KM ext. 832.

Late-Comers Can Sign For Big Bear Weekend

A few openings still remain for this weekend's (Sept. 23-25) outing to Big Bear, sponsored by CRA Ice Skating Club. The trip is open to all GD people. Call Bud Davies, ext. 2751 Kearny Mesa.

Dynamics Golfers Win Their Share in NMA-West Tourney

General Dynamics golfers won nearly half of the awards to low-scorers at the first NMA Western Division golf tournament sponsored by the San Diego Area Council Aug. 27 and 28. Altogether 301 Management Club members and guests participated.

Harry McDonald of Conrock, Los Angeles, won the expense-paid trip to Latrobe, Pa., to meet the Eastern Division winner in a play-off.

GD winners were: First Flight—J. M. Domico, F. D. LeSueur, and Bob Antonoplis, all Pomona division; J. J. Swarts, Convair.

Second Flight—J. J. Kiszla, Convair; Larry Failor of Fort Worth division based at Edwards AFB. Third Flight—T. F. Guilfoyle and T. F. Fore, Pomona; W. T. MacCarthy and J. A. Doggett, Convair. Fourth Flight—G. A. Paxon and C. R. Cearly, Convair.

Fifth Flight—J. W. Ensign Jr., Convair; B. G. Longino, Fort Worth. Sixth Flight—G. B. McPherson, Electronics. Seventh Flight—G. E. Nuss, Convair; R. W. Becker, Pomona. Eighth Flight—J. H. Kern and R. Degn, Vandenberg AFB; W. McColley, D. D. Dimmitt, Convair.

Tenth Flight—E. Secor, Convair guest.

MGT. CLUB BOWLING TOURNEY SLATED

Management Club Zone A 1966 Bowling Tournament will be held at Clairemont Bowl the weekend of Oct. 8-9. Management Club members wishing to participate may register with Forest Erwin, ext. 2884, Kearny Mesa, or Gerry Cox, ext. 1650, Lindbergh Field.

CRA Calendar

(For information on CRA activities call CRA Headquarters, KM ext. 1111. Deadline for copy for the next issue of GD/NEWS is Sept. 27. Call ext. 1071 LF or 3322 KM.)

★ ★ ★

ADVENTURERS—Film showing tonight (Sept. 21), "Skyline Hike Over Muir Trail," 7:30 p.m., CRA Clubhouse.

BADMINTON—Play Mondays, 7-10 p.m., Federal Bldg., Balboa Park.

BALLROOM DANCING—Last chance to register for new classes is Sept. 26. Call Royce Riggan, ext. 1018 LF.

BOWLING—Few openings left for winter leagues. Call ext. 1111 KM.

BICYCLE CLUB — Meeting Sept. 26, 7:30 p.m., CRA Clubhouse. Point Loma Tour Sept. 24. Leave Bali Hai Restaurant, Shelter Island, 8:30 a.m.

BONAIR FLYERS — Meeting Oct. 4, 7:30 p.m., CRA Clubhouse.

BRIDGE—Play every Friday, 7:30 p.m., CRA Clubhouse.

CAMERA CLUB—Meeting Oct. 2, 7:30 p.m., Photo Arts Bldg., Balboa Park.

CERAMICS — Meetings Tuesdays and Thursdays, 7-10 p.m., CRA Clubhouse.

CHESS — Play Wednesdays, 7:30 p.m., CRA Clubhouse.

COINEERS — Meeting tonight (Sept. 21), 7:30 p.m., Convair cafeteria, Lindbergh Field.

FENCING—Workouts and instruction Fridays, 7:30-10:30 p.m., YWCA, 10th & C Sts.

GARDEN CLUB—Meeting Oct. 5, 7:30 p.m., Floral Association Bldg., Balboa Park.

ICE SKATING — Annual Big Bear weekend Sept. 23-25. GD skate nights Thursdays, 6:15-7:45 p.m., Mission Valley Ice Arena.

PISTOL CLUB — Club shoot Sept. 25, 9:15 a.m., SD Police Range, Federal Blvd. and Home Ave.

RADIO CLUB—Meeting Oct. 6, 7:30 p.m., CRA Clubhouse radio room. Call Fred Schulz, ext. 1392 KM.

SAILING — Meeting Sept. 28, 7:30 p.m., CRA Clubhouse.

SCULPTURE — Workshop sessions Mondays, 7:30-10:30 p.m.

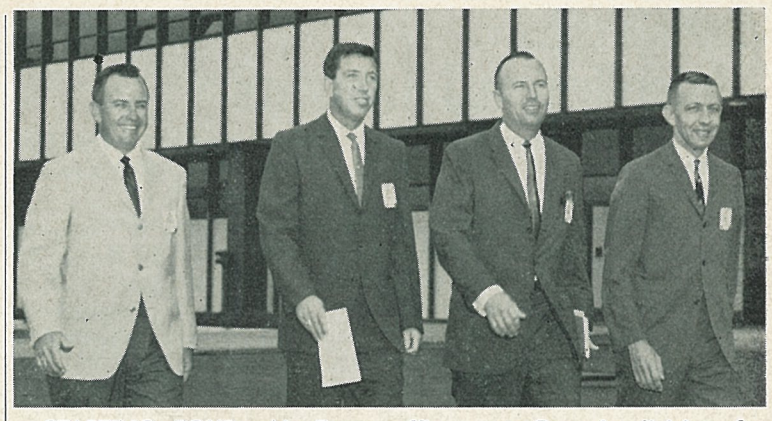
SKI CLUB—Meeting Oct. 4, 8 p.m., Catamaran Hotel, Mission Blvd. For water skiing schedule call Joe Harris, 284-0278 before 3 p.m.

SQUARE DANCING — Last day for entering new beginners class is Sept. 27, 8 p.m., CRA Clubhouse. Call Marty Stutz, ext. 1441 KM.

TOASTMASTERS — Convair Toastmasters No. 3745 meet Wednesdays, 4:15 p.m., Dynamics Toastmasters No. 457 meet Thursdays, 5:15 p.m., both in CRA Clubhouse.

TOASTMISTRESS CLUB — Serra Mesa Club meets first and third Mondays, 7:30 p.m., CRA Clubhouse.

WIVES CLUB—Monthly pot-luck and crafts session Sept. 28, CRA Clubhouse.



STARTING TOUR—Air Force officers at Convair division for industrial planning and procurement course are, left to right, Capt. Lon P. "Pat" Corbett, Maj. Lonnie J. Rowin, Maj. Joseph W. Craver Jr. and Capt. James K. Moyer.

Four Air Force Officers Begin 10-Months Duty at Convair

Four Air Force officers this month began a 10-month course in industrial planning and procurement at Convair division under an Air Force "Education-with-Industry" program.

They are Maj. Joseph W. Craver Jr., Maj. Lonnie J. Rowin, Capt. Lon P. "Pat" Corbett and Capt. James K. Moyer. This marks the 10th year the division has offered the training program in conjunction with the Air Force Institute of Technology.

The four officers are being briefed on Convair administrative and staff functions, management systems, products, sales and marketing and will have "on the job" assignments with various departments in the division.

They also will attend seminars on product improvement, value engineering and data processing and will visit other industrial firms in Southern California and the General Dynamics Corporate headquarters in New York.

Major Craver came to Convair from an air operations assignment at Air Force ROTC Headquarters at Maxwell AFB, Ala., and served from 1960 to 1964 as an assistant professor of aerospace studies at Stanford University. He received his B. S. degree in business administration in 1953 from Arizona State University and his M.A. in personnel administration in 1963 at Stanford.

Major Rowin has served for the past five years as procurement management staff officer at Sewart AFB, Tenn., following a two-year assignment at the U.S. Air Force-Europe procurement center in Paris. He received his bachelor's degree in marketing from the University of Arkansas in 1954 and his master's in management from the University of Colorado in 1962.

Captain Corbett has served as a B-52 combat crew radar navigator at Columbus AFB, Miss., since 1959 and previously was a B-36 combat crew navigator at Carswell AFB, Texas. He received his bachelor's degree in marketing in 1954 from North Texas State University.

Captain Moyer has been a co-pilot on CK-135 aircraft and earlier had served as co-pilot on KC-97s. He attended San Diego State College and received his B. S. degree in business administration last year from Florida Southern College.

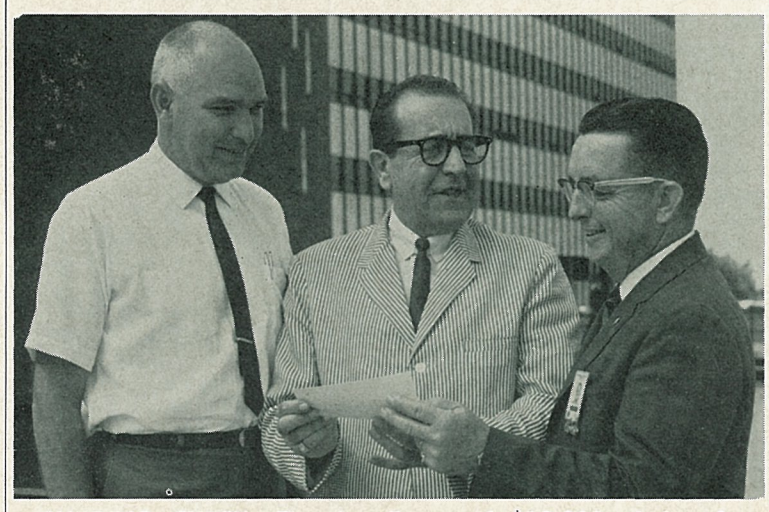
Officers who recently completed 10-months training with Convair now have new duty assignments.

Capt. Harry L. Arthur is F-111 contracting officer for the Air Force Plant Representative's Office at Fort Worth division. Capt. Frank M. Hilbish is chief of the industrial management evaluation division of the Air Force Plant Representative's Office at Hughes Aircraft Co. in Culver City, Calif.

Capt. Lawrence G. Russ has a systems management assignment at Wright-Patterson AFB, Ohio, and Capt. William G. Kluck is assigned to the Air Force Plant Representative's Office at General Electric in Cincinnati, Ohio.

Convair Coineers To Exhibit Silver

Convair Coineers will display their collections of silver tonight (Sept. 21) at the regular monthly meeting, 7:30 p.m., Convair cafeteria, Lindbergh Field plant. Door prizes will be four Kennedy cigarette lighters, two U. S. currency guides, and a BU 1938D buffalo nickel. A 1927D $20 gold piece, 15 U. S. silver dollars, and a mystery half-dollar will be raffled. Everyone present will receive a BU Canadian 1966 dime.



BUILDING CHECK—First installment of $10,000 pledge from Convair Employes' Con-Trib-Club to San Diego Junior Achievement Club for use toward purchase of new building is presented to Edward Peterson Jr., Junior Achievement executive director, center, by J. Robert King, left, and Howard French of Con-Trib Committee. Pledge will be paid in three annual installments and first check was for $3,334.

Viet Nam Veterans To Discuss Conflict For Electronics Club

"Inside Viet Nam" will be discussed by veterans of the Southeast Asian action at the Sept. 28 meeting of Electronics-SD Management Club.

The meeting will be at Town & Country Hotel's Meeting House. Social hour begins at 6:15 p.m.; dinner at 7:15.

Frank VanCleave of KOGO television station, who recently toured Southeast Asia for Time-Life Co., will give his impressions of conditions.

He then will moderate a panel discussion on Viet Nam operations. Panel members will be Maj. W. W. McMillan, USMC, Marine Gunnery Sgt. J. Howard, and a USMC fighter pilot, all recently returned from Viet Nam.

Tickets are on sale by department boosters.

Convair Bridge Fans Do Well in Tourney

Nineteen Convair bridge players were in the top four places in various divisions of play at the annual San Diego Bridge Sectional held Aug. 26-28 at Stardust Hotel.

They were: Commissioner Bob Rustad and wife, Mitzi; Mr. and Mrs. Wayne Evans, Sally and Mits Ishihara, Isabel and Ralph Emerson, Ann Stephens, Francys Darr, G. N. Hampton, Albert Silverman, Don Leistico, Tony Miller, Edward Lou, M. L. French, B. Blutinger, J. R. Williams, Al Hinden.

Winners in CRA play Sept. 2 were: Don Leistico and Tony Miller, North-South; Sally Ishihara and Joe Seemann, East-West. On Sept. 9 John Gimbel and Herb Eger took North-South honors, and Douglas Greenwood and Joe Seemann, East-West.



SPORTS NIGHT—A total of 1,022 Convair Management Club family members enjoyed sports night activities Sept. 1 at Westgate Park and saw Padres outpoint Phoenix Giants, 4-3. Photo at center shows lineup for barbecue dinner before game. Lance Alworth of San Diego Chargers leans over table, at far right, to present certificate for autographed Chargers football to Norman Gross, son of Gerhard Gross of Dept. 141-4. In photo at left, prizes in adult drawing are presented by San Diego Padres players. Donations for drawings raised $433.30 for Management Club scholarship fund. Prizes included season tickets to Chargers, Padres and Gulls games, Las Vegas accommodations, camera, radios, autographed baseballs and footballs and team pictures.

Pine Crest Resort and CRA Park Both Popular Over Labor Day

Labor Day weekend drew 2,347 General Dynamics family members to CRA's popular 90-acre Pine Crest resort in the Cuyamaca Mountains and another 1,800 enjoyed picnicking closer to home at CRA Missile Park.

Jack Clendenon, Pine Crest manager, said 1,547 employes and family members camped out for the three-day weekend in 97 campsites under the trees at Pine Crest and there were an additional 800 visitors using the park's picnic facilities without staying overnight.

Clendenon said Pine Crest should continue to have good camping weather through November and several families are already planning to spend the Nov. 24-27 Thanksgiving vacation period there.

Pine Crest is along Highway 79, three miles east of Julian. There is a minimum $1 daily charge for use of facilities for one or two days and 50 cents daily thereafter. Employes leaving trailers parked at Pine Crest pay a $1.50 weekly storage fee. Sports equipment can be checked out.

Weekly attendance at CRA Missile Park, Kearny Mesa, during the month of August averaged 1,767, according to Jerry Starkey, manager there.

Mixed Trio Bowl League Planned

A new mixed trio league has been added to the CRA bowling schedule for the winter season for bowlers who can't make the usual 6:30 p.m. starting time.

The league will bowl at Parkway Bowl on Wednesday nights at 7 p.m. Participants will bowl three games each night.

An organization meeting will be held tonight (Sept. 21) at 7 p.m. and league bowling will start next Wednesday if enough teams are formed by then, Commissioner Forest Erwin said. Anyone interested in signing for the league may call Erwin at KM ext. 2884.

There are still openings in the 10 other leagues bowling on Monday, Tuesday, Thursday and Friday evenings at 6:30 p.m. They are now starting at Pacific Rec, Victory Lanes, Frontier Lanes, Clairemont Bowl and Parkway Bowl. For registration call CRA Clubhouse, ext. 1111.

Tuesday Is Last Date For Sq. Dance Sign-up

Final date for General Dynamics people to enter the new series of square dancing instruction is next Tuesday, Sept. 27.

After that date, the course, given only once a year, will be closed, Commissioner Marty Stutz reminded.

The beginners class is held at 8 p.m. Tuesdays for some 20 weeks in the CRA Clubhouse, Kearny Mesa. Dotty and Van Vander Walker are instructing.

Call Stutz at ext. 1441 KM for information or sign at the class period next week.

Reduction Offered In Concert Price

Advance sale of a limited supply of choice seats to the one night performance of Mantovani and his 45-piece orchestra will start today (Sept. 21) at all employe services outlets, CRA Clubhouse, and Lindbergh Field engineering mailroom, Bldg. 51.

CRA is offering first chance to General Dynamics people to purchase $5 orchestra seats for $4.50 if they buy their tickets early.

Mantovani's concert will be Nov. 6 in the Convention Hall. This is Mantovani's 10th visit to the United States.

Football Available At Dollar Discount

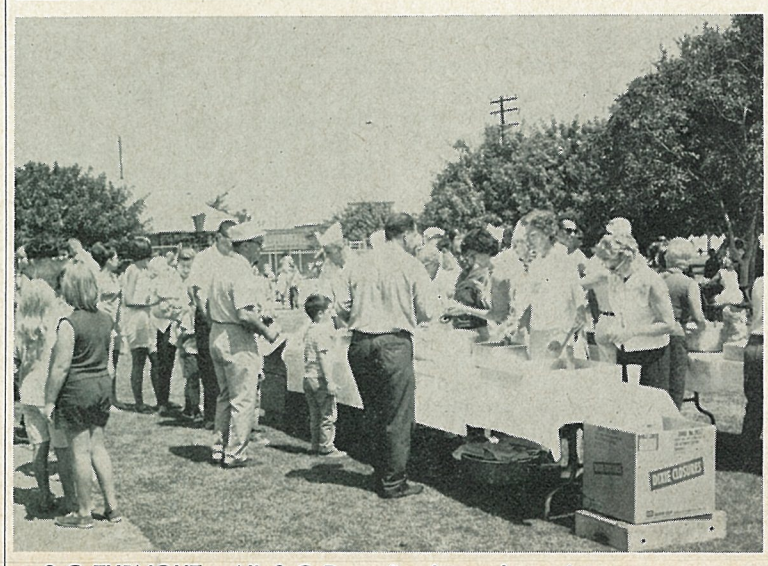
Football fans can start buying discount tickets today (Sept. 21) to the next Chargers home game which will be Sunday, Oct. 2, with the Miami Dolphins.

Tickets are $2.50, a dollar less than regular price, for reserved seats in the coaches' circle. They will be sold at all regular employe services outlets and the CRA Clubhouse through Sept. 29.

SPACE CARDS GO ON SALE

Plastic-coated "space" playing cards are on sale for 65 cents at Convair, Electronics-SD, and Stromberg-Carlson employe services outlets, the CRA Clubhouse and the Bldg. 51 engineering mailroom at Lindbergh Field.

Sports & Recreation



S-C TURNOUT—All S-C Data Products showed up at company-sponsored family picnic Sept. 10 in Missile Park, Kearny Mesa. Plenty of food, drinks, games, entertainment kept crowd busy until dark.

Five Hundred Flock to Picnic For Data Products Families

They all came — to S-C Data Products family picnic in the Missile Park at Kearny Mesa Saturday, Sept. 10.

And they stayed all day — festivities started in mid-morning and went on until dark.

In fact, Jim Pascarella, chairman of the S-C recreation committee who staged the S-C outing, said they didn't lose a customer. At least 500 moms, pops, and youngsters showed up to eat the spread catered by Prophet Co. Convair Recreation Association donated the punch and Data Products furnished beer, ice cream, bags of candy for the children.

Mrs. Albert Palland won the set of Corningware and Billy Ellis took home the Instamatic Kodak given in the drawing.

Ed Macy and Ken Sellers won the ping pong tourney; Tom Hendry and Tony Oakley were horseshoes champs; and Jane Goodman got her ball within an inch of the pin in the golf pitch contest.

Softball and bingo occupied all who weren't taking free rides on the miniature train and merry-go-round, it seemed. 3,000 rides were tabulated!

Next big event for Data Products people will be the Halloween masquerade dance, said the recreation committee. Helping Pascarella were other members, Nate Waddington, Trudy Rice, George Elmore, and Jack W. Swank, manager of industrial relations.

Be sure to use the ZIP code when addressing mail. It speeds up delivery!

Trips to Rugged Areas Planned

Convair Adventurers are planning trips to rugged areas in the next two months.

This weekend (Sept. 24-25) members will make an overnight excursion to Puerto de Santo Tomas, a Mexican fishing camp south of Ensenada. Jorge Zorrilla is leader. He may be reached at home phone, 454-1374, for details.

A hiking and mountain-climbing trek in the High Sierra is planned for October under leadership of Jim Moore. The group will climb Mt. Agizzas overlooking the Palisade Glaciers near Bishop.

Plans are now in the making for a trip over Thanksgiving weekend to the Havasupai Indian reservation in Havasu Canyon, at the westernmost end of the Grand Canyon. Since reservations must be made well in advance with the Havasupai tourist manager, Commissioner Dick Bowen urges interested people to contact him as soon as possible at KM ext. 2629.

$5 Baseball Bus Trip Offered Through CRA

There are only a couple of days left to reserve seats on chartered buses for a CRA group trip to the Baltimore vs. Angels ball game Sept. 25.

Total cost of round-trip transportation and admission to Anaheim Stadium is $5. Seats are between first and home plate, under the shade.

One bus will leave the Kearny Mesa parking lot in front of Bldg. 2 by the flagpole and the other from the Bldg. 19 north parking lot at Lindbergh Field. Departure time is 10 a.m.

Call Inez at ext. 1111 KM or Betty, ext. 430 LF, to make reservations.

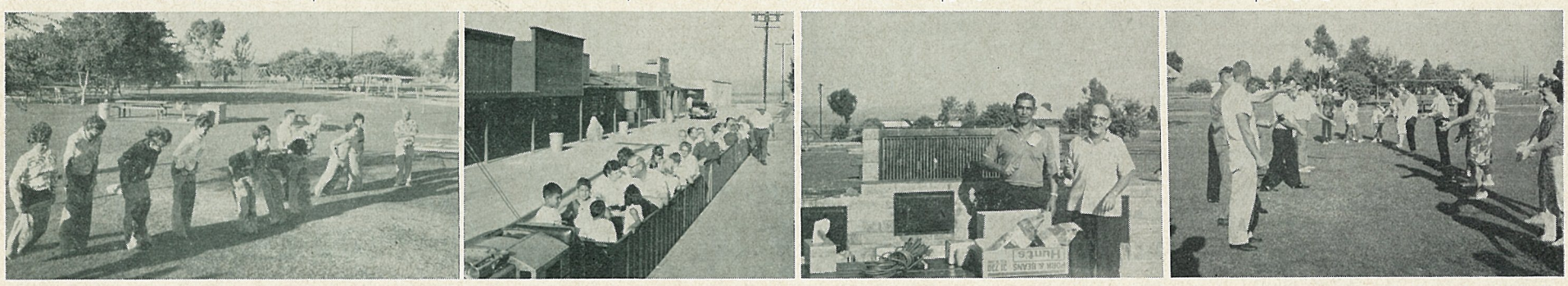
Firemen and Families Frolic At Picnic in Missile Park

Convair firemen and their families had so much fun at their first picnic this month that they have decided to make it a regular affair, along with their annual Christmas dance.

About 90 from both Kearny Mesa and Lindbergh Field plants turned out to enjoy the evening of Sept. 7 at CRA Missile Park. They rode the miniature train, played shuffleboard and horseshoes, competed in sack races and egg tossing.

Stan Sharp, manager of industrial security, downed Del Dimmett, chief at Lindbergh Field, in a fast ping pong match.

Jim Johnston and Ben Diffenbaugh doubled as cooks, frying at least 200 hamburgers and 75 hot dogs for the crowd. Davidson Bros. furnished a tub of iced grape punch.



FIRE DEPT. FUN — Convair firemen from both Kearny Mesa and Lindbergh Field plants and families live it up at Sept. 7 picnic in CRA Missile Park. From left, ladies hop in sack race; grownups and youngsters pile into miniature train for rides around spacious recreation area; Jim Johnston and Ben Diffenbaugh, chefs for evening, keep crowd supplied with hamburgers and hotdogs; couples pair off for egg tossing — or splattering!

DOD Goes on Record With F-111 Report

(Following is the partial text of a Department of Defense report which appears on page 21207 of the Congressional Record of Sept. 8, 1966. In requesting insertion in the Record, Sen. Stuart Symington stated: "Mr. President, an article in Barron's magazine . . . relating to the F-111-TFX program has resulted in considerable correspondence . . . Accordingly, I requested the Department of Defense to supply their position with respect to this article. . .")

The article . . . has been carefully reviewed by responsible officials of the Navy, the Air Force and the Department's Directorate of Defense Research and Engineering. The article contains numerous factual errors, unsupported statements and misleading conclusions. These points should be made:

1. Production of the F-111A is on schedule. The first deliveries to combat forces will be made next year . . .

2. In essential respects, the performance of the F-111A will be close to the evaluations made during the 1962 competition. The more than 1,200 hours of actual flight test experience to date confirm that in some cases these performance forecasts of four years ago will be exceeded.

3. In the critical factors of range, payload, speed and versatility, the F-111A will be superior in its class to any other tactical weapon system in the world.

4. The goal of one basic plane for two services is being met. In 1962, it was estimated that airframe "commonality" would be 83.8 per cent. At present, it is 83.4 per cent.

5. The first F-111 flight was made on schedule only 25 months after the contract was awarded. On the second flight, the F-111's revolutionary new variable sweep wing was demonstrated successfully — a significant technical advance that has become a routine feature of subsequent flights.

6. The cost experience during the RDT&E phase has compared favorably with that of other large-scale development programs. It is true that the present estimate exceeds the estimate made in 1962 by the Air Force, but, as the 1963 Congressional testimony bears out, Secretary McNamara never accepted that estimate. The Air Force RDT&E figure today reflects little change in airframe costs, some increase in requirements for support items and substantial increases in engines and avionics. The Navy increase is principally accounted for by inclusion of the development costs of the Phoenix missile and Airborne Missile Control System which were not in the original estimate, a change in the Air Force-Navy funding agreement, the inclusion of one additional test aircraft, airframe modifications and more clearly defined requirements for support items such as the operational flight trainer.

WEIGHT

There is essentially no weight problem with the Air Force F-111A. Statements to the contrary are without foundation in fact. It has often been stated that there is a weight problem with the Navy F-111B. The Navy has clearly acknowledged undesirable weight growth in the early R&D aircraft. Flight tests of these early aircraft had indicated that improvements beyond the capabilities of the early test aircraft are desired in a number of performance characteristics. It is usual to make necessary improvements during the course of the development programs for advanced aircraft. These deficiencies are recognized and an active design, development and test (wind tunnel and flight) program has been prosecuted to isolate, identify and rectify the problems as they are discovered.

Tests begin on the fourth F-111B in September and on the fifth in October. These will be the first aircraft to incorporate significant benefits of the Super Weight Improvement Program (SWIP), as well as a number of important aerodynamic improvements to reduce drag, increase lift and generally improve performance. These two SWIP aircraft will be more representative of the production aircraft.

The F-111B is a weapons system composed of three elements: the Phoenix missile, the Airborne Missile Control System and the airplane itself. This combination will provide a capability of protecting the fleet against high-performance, long-range offensive systems of the enemy. The missile control system is the most advanced in the world. The F-111 airplane in which it is being installed has, even right now, before development improvements, a better performance capability in the air with regard to range and payload and longer time on station than any other carrier fighter aircraft the Navy has. The probability for success of the total weapon system concept is excellent. While the Navy may not get all the performance parameters it aimed at, its basic requirements should be met . . .

OTHER ALLEGATIONS

The allegations that the F-111 will require more maintenance than comparable aircraft is a prime example of a misleading conclusion based on false premises. Comparing the subsonic, single-engine A-7 and C-5A subsonic transport to the supersonic, twin-engine F-111 is like comparing a truck to a racing car. A fair comparison would be with similar types of aircraft such as the F-105 and the F-4C. This shows that the F-111 should be far superior, in maintainability. After many years of operational service which have resulted in reduced maintenance times, these aircraft still require more maintenance time per flight hour — 40 hours for the F-105 and 38 hours for the F-4C — than the F-111 which, at the very outset, must demonstrate only 35 hours of maintenance per flight hour.

The assertion that the TFX was "commissioned primarily as an Air Force system and designed by Air Force aerodynamicists," with "little regard for the niceties of having to land at sea" is not true. The fact is that the specifications for the aircraft were established jointly with the Navy. In this regard, it is significant to point out that the short takeoff and landing capabilities desired by the Air Force required essentially the same type of aerodynamic features required for landing on aircraft carriers. The variable sweep wing and the high lift devices permitted the design of a high performance aircraft with extremely good low speed approach and landing capabilities, characteristics desired by both services.

The statement that "most of the carriers now commissioned and under construction will not be able to take the plane from the hangar deck up to the flight deck at anything over 70,000 pounds" is not true. The fact is that the elevators of the Midway, Forrestal and later classes of attack carriers which will be in the fleet at the time the F-111B becomes operational have a capacity to lift loads greater than that of a fully-loaded F-111B. These include today the USS Midway, FDR, Coral Sea, Forrestal, Saratoga, Ranger, Independence, Kitty Hawk, Constellation, Enterprise, America, and Kennedy.

It was asserted that the F-111B will need a "wind-over-the-deck" speed of at least 35 miles per hour and concludes that this seems "beyond tolerable limits." This figure is wrong. The current Navy estimate is that the F-111B would require less than half that amount of wind over the deck. It is significant to note that under comparable conditions, the Navy's F-4 requires 25.4 miles per hour and the RA-5C requires 32 miles per hour.

The article says "tests have shown" the F-111B cannot maintain its maximum time on station — loiter time — "because its weight prevents it from carrying the necessary fuel." This is incorrect. The fact is no loiter tests have been flown as they are not included in the early flight test program. However, based on flight test data now in hand and the expected subsonic drag reduction, the Navy believes that its loiter time requirements should be met.

The statement that the third model of the F-111B has "failed by 12,000 feet to reach the minimum specified height of 60,000 feet" is misleading as well as incorrect. In the first place, no such flight has even been scheduled or attempted with any F-111B at this stage of the program. Secondly, the specified combat ceiling for the F-111B is not 60,000 feet.

The article asserts that the F-111A cannot yet fly supersonically "on the deck," that it has been unable to reach Mach 2.5, and that the highest it has been able to go is some 25 to 50 per cent short of requirements. The F-111A has flown supersonically at low level — 1,000 feet — during structural testing of the aircraft. The altitude restriction was set solely for safety purposes. The F-111A aircraft have made 77 flights at speeds of Mach 2 or above, including one at Mach 2.5 on July 9, as announced by the Defense Department. While it is true that the F-111A at this stage of the test program has not reached its specification altitude, it has flown within 3,000 feet of the ceiling specified in the contract.

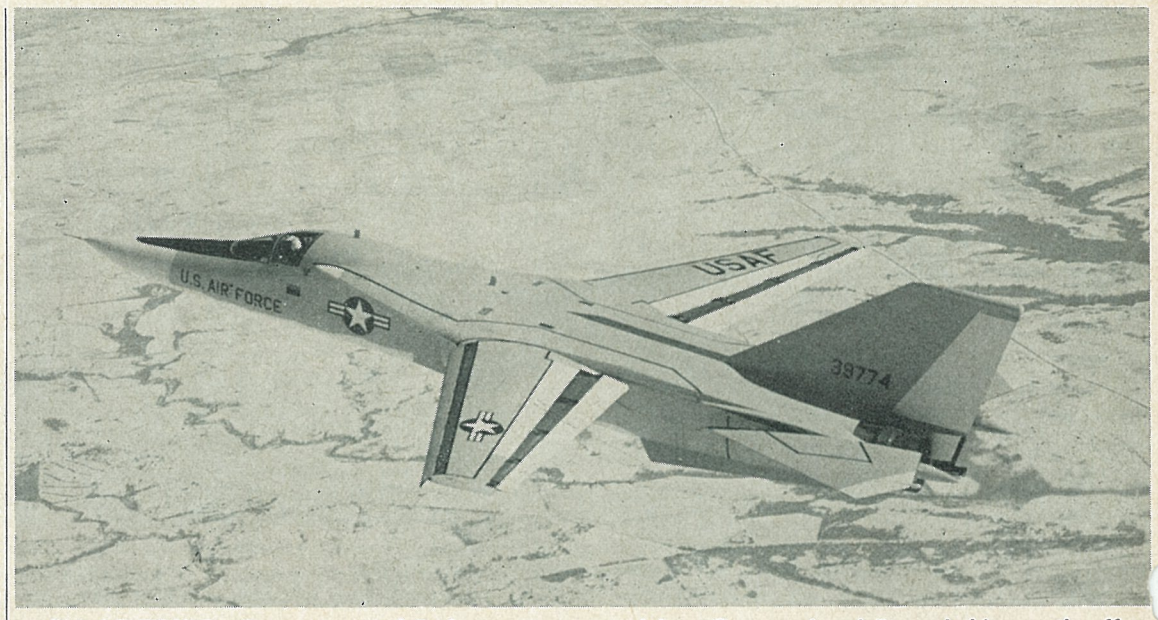
The author's conclusion that the F-111A and F-111B should be in combat by now but instead "remain years away from operational use" is his own private assessment. These aircraft were never scheduled to be in service now. The F-111A was to become operational in mid-1967 and is on schedule. Largely because of prior difficulties with the Phoenix missile system, the F-111B will become operational in early 1970 rather than 1968 as originally planned . . .

The reference in the article to exhaustive tests with the eighth F-111A test aircraft and the related conclusion that the aircraft is no match for the Soviet MIG-21 are without foundation. There have been no such tests conducted with any F-111A aircraft at Eglin Air Force Base or any other place for this purpose. It is also significant that any aircraft performance data used in such a comparison based on Air Force F-111A #8 would not be representative of an operational configuration, since #8 is of the heavier pre-SWIP weight and had a lower-rated prototype YTF-30-P-1 engine installed. Further, since the F-111A is designed as a ground attack aircraft for deep penetration into a hostile environment, any comparison with a MIG-21 in an air-to-air "dog fight" engagement obviously is out of the context of its basic mission.

Nevertheless, for any air-to-air missile engagements the F-111A is programmed to include the Sparrow, Falcon and Sidewinder air-to-air missiles. On the other hand, if one compares the MIG-21 with the F-111A in the ground attack role (a role for which the MIG-21 is not primarily designed), the F-111A has 40 times the payload capability at twice the range, in addition to greater speeds at both low and high altitudes . . .

The article similarly misrepresents the situation with regard to the FB-111, the strategic bomber version of the F-111.

It contends that the FB-111 will be so range limited that the number of tankers required would "all but nullify SAC as a means of piloted surprise non-nuclear deterrence." The fact is that on a typical non-nuclear mission both the B-52-D and the FB-111 require a single tanker.



ON SCHEDULE—Department of Defense report read into Congressional Record this month offers full review of F-111 development program.

Is it news? Pick up a phone and call GD/NEWS

Atlas Missile Joins Display at Patrick

Atlas missile 16-D and an Agena second stage have been erected as a permanent display on "missile row" in front of the Air Force Technical Laboratory at Patrick AFB, Fla.

The display is along Highway A1A and is a major tourist attraction in the Cape Kennedy area.

Morris E. Beam, a senior design engineer in Dept. 973-3 at Cape Kennedy, represented Convair division in coordinating plans for erection of the Atlas, which previously had been used at Sheppard AFB, Tex., in training of Strategic Air Command crews for operational Atlas ICBM sites.

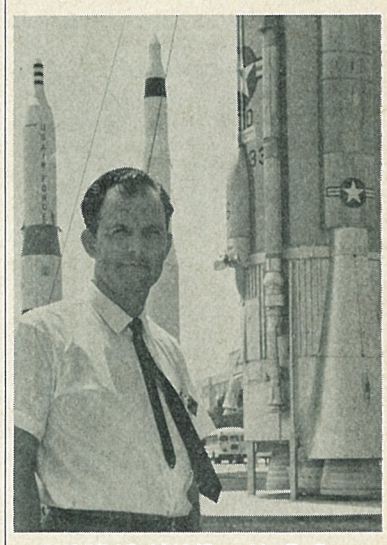
William Shine, a design group engineer in Dept. 962-3 at Kearny Mesa, also met with Air Force and Convair representatives at the Cape in planning for the display.

The Atlas was lined with two layers of plywood and had stiffener rings inserted inside the tank for structural support. Robert Clark, leadman in the Dept. 454-0 wood shop at Kearny Mesa, assisted

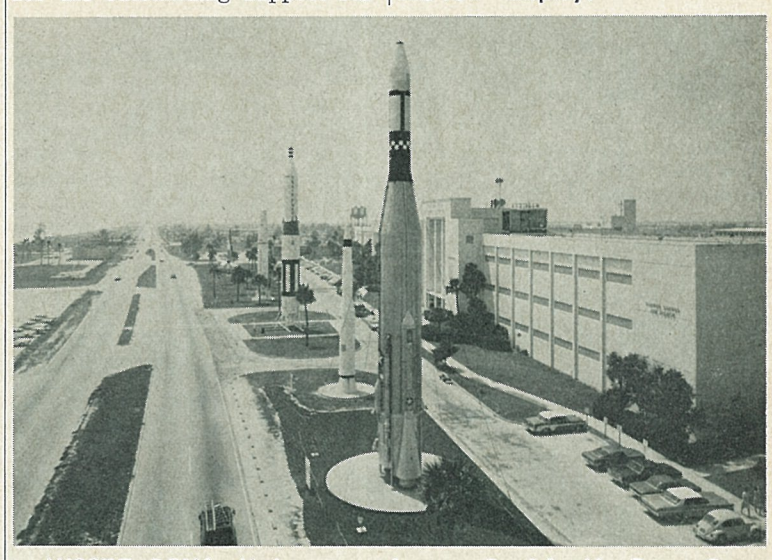
Lt. Col. William T. Coleman Jr., director of information for Air Force Eastern Test Range headquarters at Patrick AFB, in a letter to Kenneth E. Newton, Convair ETR operations manager, said he would like to "express the gratitude of the Commander for the outstanding support furnished" in erection of the Atlas.

"This splendid effort came from every department of Convair division when needed but I would like to commend Morris E. Beam in particular for his cooperation and skilled assistance, without which the job could not have been concluded," he said.

Other missiles displayed at the Technical Laboratory are a Minuteman, Titan 2, Thor, Snark, Jupiter, Matador, Polaris, and Bomarc.



HELPING HAND—M. E. Beam, senior design engineer in Convair Dept. 973-3 at Cape Kennedy, gave technical assistance in adding Atlas-Agena to "missile row" display.

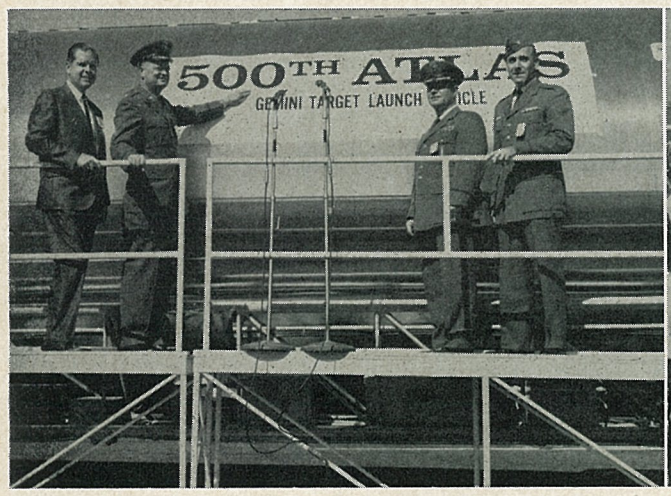


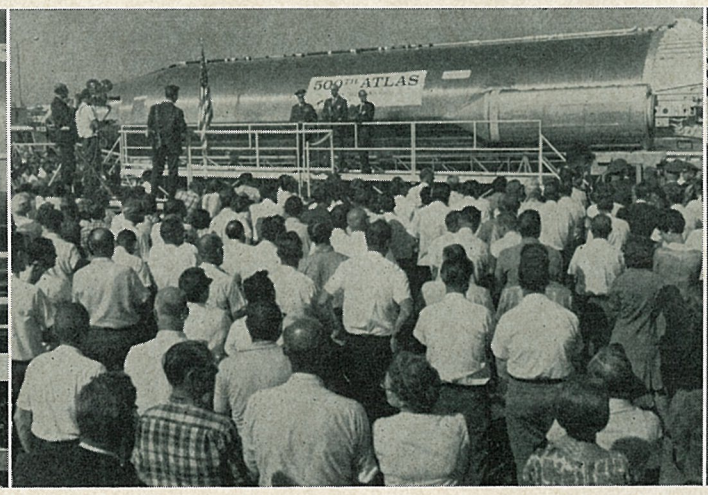
MISSILE ROW—Major attraction at Patrick Air Force Base, Florida, is "missile row" in front of AF Technical Laboratory. Atlas-Agena is in foreground. Birds in background include Minuteman, Titan 2, Thor, Snark, Jupiter, Matador, Polaris, Bomarc.

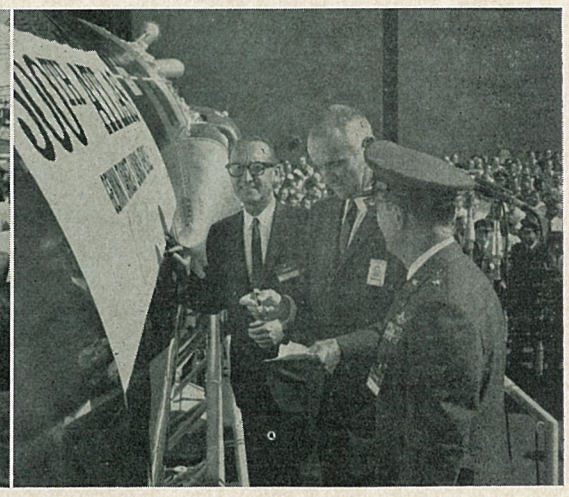
SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 19, No. 20 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, October 5, 1966







NO. 500—Roll-out of 500th Atlas at Convair's Kearny Mesa plant was occasion for celebrating. More than 1,000 employes turned out to watch. At right, Dr. George E. Mueller, associate administrator, NASA's Office of Manned Space Flight, Jack Bowers, Convair general manager, and Brig. Gen. Paul T. Cooper, commander of Air Force Space Systems Division, autograph banner. At left, among the officials present were Grant L. Hansen, Convair vice president-launch vehicle programs, Col. Joseph L. Hamilton, SSD deputy for launch vehicles, Col. Leo W. Sullivan, SSD SLV-3 program director, and Col. James R. Ourand, DCAS plant rep.

Convair Honored, 500th Atlas Leaves Factory

Convair division's 500th Atlas was rolled out of the Kearny Mesa factory Sept. 16. More than 1,000 employes turned out for ceremonies.

Dr. George E. Mueller, associate administrator, Office of Manned Space Flight, NASA Headquarters, and Brig. Gen. Paul T. Cooper, commander of the Air Force Space Systems Division, joined Jack L. Bowers, Convair general manager at acceptance ceremonies in which the Atlas was formally presented to the Air Force and NASA.

The Atlas, SLV-3 No. 5307, will be used to boost an Agena target vehicle into space in the forthcoming Gemini 12 mission.

Other officials present included Col. Joseph L. Hamilton, SSD deputy for launch vehicles; Col. Leo W. Sullivan, SSD SLV-3 program director; Ronald Rovenger, NASA resident representative; Col. James R. Ourand, Defense Contract Administration Services plant representative; Grant L. Hansen, Convair vice president-launch vehicle programs, and Karel J. Bossart, Convair technical director, known as "father of the Atlas."

Jack Miller, Convair launch conductor for both the Gemini 11 and 12 missions, also was present.

Mueller, Cooper and Bowers

(Continued on Page 2)

Modification Kit Contracts Awarded

Convair division has received two recent contracts from San Antonio Air Materiel Area, Kelly AFB, Texas, for modification kits for updating of F-102s and F-106s.

One contract, in the amount of $381,000, calls for kits for replacement of the existing radarscope in the F-106 with an advanced multi-mode storage tube. Modification kits will contain items necessary for installation of parts and components.

Hughes Aircraft Co. will supply the multi-mode storage tube radarscope and associated black boxes.

(Continued on Page 2)

NASA Orders More Centaurs

Convair division has received a $15,565,331 fixed-price contract from NASA's Lewis Research Center for fabrication and assembly of five additional Centaur vehicles for use in future space missions.

Deane Davis, Centaur program manager, said the vehicles to be built under the new contract will be delivered in 1967 and 1968.

Although specific missions for the five Centaurs have not been announced by NASA, two of the five are expected to be used in Project Mariner for Mars flyby in 1969. Convair currently is conducting a NASA-funded study in support of the missions.

Each of the new Centaurs will have "two burn" capability and will be built to the same configuration being used for Surveyor spacecraft launches.

Seymour Zeenkov is the Centaur program office manager for the new contract. Launch vehicle program officials playing key roles in the contract procurement, in addition to Davis and Zeenkov, were J. H. Edwards, Centaur contracts, and J. C. Cannady, manager of finance, scheduling and administration. Robert G. Daly, manager of manufacturing operations for launch vehicle programs, will be responsible for production and checkout.

Zeenkov said tasks to be performed are defined much more precisely under the new contract than under previous Centaur contracts. All parts produced will be maintained in a separate inventory.

The contract covers production of nose fairings, interstage adapters and insulation panels for the five vehicles. Management and engineering time expended, however, will be covered under a separate contract.

Zeenkov said about $1 million from the new contract will go to Fort Worth division for assistance and about $2 million to other subcontractors. About $750,000 is earmarked for production of 170 different types of flight component spare parts.

The order for five additional

(Continued on Page 2)

'Do Good Work' Winner's Record 'Phenomenal'

A "phenomenal" improvement of more than 89 per cent in work performance has won Convair "Craftsmen of the Month" honors for Dept. 836, first-cut operations at the Lindbergh Field plant.

W. E. Magnuson, "Do Good Work" program chairman, said the department improved performance from 1.66 defects per 100 manhours worked during the past six months to .17 per 100 manhours worked during the past three months.

This gave the department a 127 quality index for top honors among departments in the San Diego area for the month. The department had won Craftsmanship honors previously in March.

"Craftsmen of the Month" honors for the Eastern Test Range were shared by two functions, Complex 12 and maintenance and fabrication both with no defect records and perfect 130 quality index tabulations.

The win was the sixth consecutive one for maintenance and fabrication and the seventh since it entered the monthly competition last year. Complex 12 had won three times during 1965.

Western Test Range functions have changed from the quality index to a new goal setting method of performance appraisal.

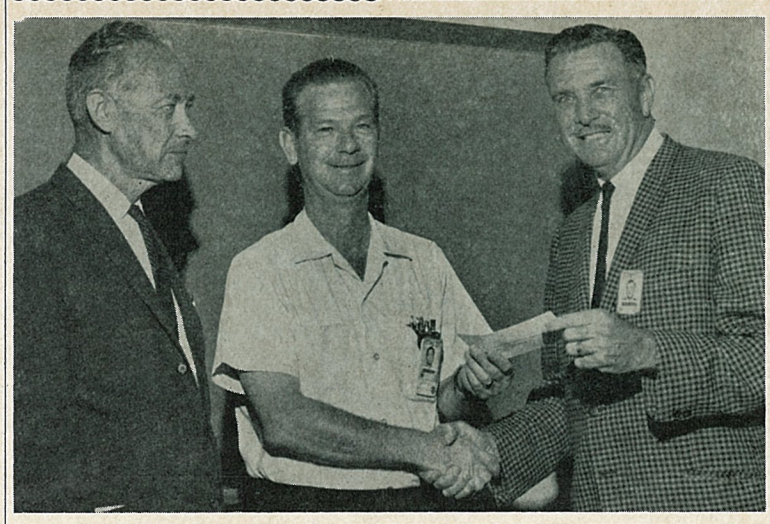
DEPTS. ESTABLISH PROGRESS CHARTS

Progress is "showing" in Convair division departments!

Charts on which progress is being plotted toward recently established departmental goals now occupy a prominent place on the bulletin boards in almost every department within the division.

W. E. Magnuson, chief of special projects in reliability control, said division officials are pleased with the manner in which

(Continued on Page 2)



IDEA AWARD—L. M. Rapp of Dept. 780-2, center, receives Employe Suggestion Award check for more than $500 from Frank Kemper, electronics manufacturing operations manager, right, as E. D. Heller, cost reduction and value control manager, watches.

Check For $541 Rewards Idea For Color Coding Diagrams

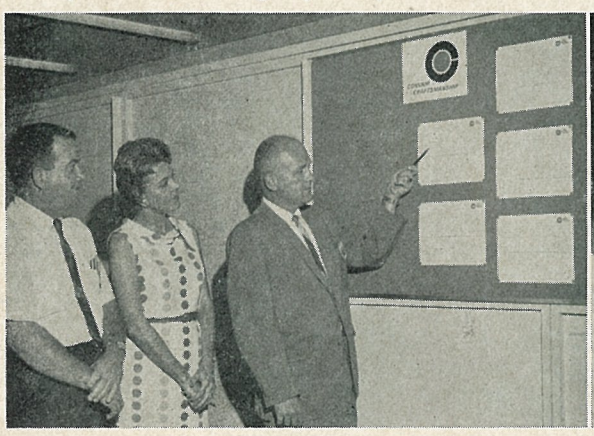
An Employe Suggestion Award check for $541.50 has been presented to L. M. "Buck" Rapp, a Convair division electronics development technician in Dept. 780-2, for an idea that will save the division more than $5,000 during its first year of use.

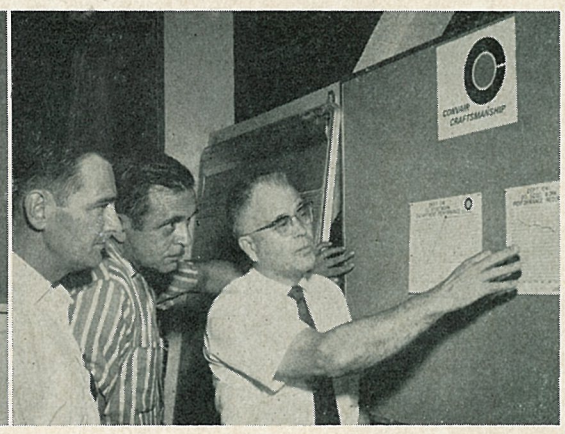
Rapp devised a method for using colored dots on diagrams of miniature electronic modules being welded. Color of the dot at each weld location gives the welder immediate information on type of lead-in material to be used and pressure and heat to be applied.

Previously the welder had to read a number on the diagram and then refer to a chart to determine the process to be followed.

Frank Kemper, manager of electronics manufacturing operations, said the new system makes it easier to spot the location to be welded and will cut time required and avoid errors.

Eight different colors of dots are used on the diagrams to show the weld "schedules" to be used.





PROGRESS CHARTING—Typical of excellent goal progress charting in Convair departments are these. In photo at left, Eugene Fox, manager of budgets, points out progress to W. H. Meyer, senior budget analyst, and Pat M. Kennedy, statistical technician. In photo at right, Paul Pearson, Dept. 041 foreman at Lindbergh Field, C-141 empennage assembly, explains goals to John Bogen and John Montejano.

Blind Teen-Ager To Address Club

Tickets are on sale by Management Club Boosters at all Convair facilities for the coming Convair Management Club meeting Wednesday, Oct. 19, at Vacation Village.

Social hour begins at 5:30 p.m., followed by dinner at 6:30.

Spotlight speaker will be a blind teen-ager who will talk on his experiences as a member of a Junior Achievement group. He will be introduced by Ed Peterson, director of the San Diego Junior Achievement organization.

Sponsoring is contracts department with Allan Albright, general chairman.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between Oct. 1 and Oct. 15.

Thirty-year: Dept. 731-0, W. T. Herchold; Dept. 832-2, D. F. Pearse.

Twenty-five-year: Dept. 015-0, A. Becker, C. E. Hultz, J. K. McDonough; Dept. 140-1, R. D. Williams; Dept. 193-3, C. Garrity; Dept. 200-0, G. M. Loudermilk; Dept. 401-1, G. R. Bell; Dept. 420-0, G. E. Nuss; Dept. 454-0, H. W. Riley; Dept. 511-4, C. L. Bobo; Dept. 715-0, K. Curry; Dept. 756-0, W. C. Cockerell, A. L. Kelso; Dept. 832-3, C. B. Hill; Dept. 833-2, E. C. Finley; Dept. 985-1, M. L. Gee.

Twenty-year: Dept. 015-0, P. D. Disney, P. Perrero, H. B. Wilson; Dept. 142-1, A. W. Koenig; Dept. 143-4, C. H. Sherman; Dept. 250-1, C. J. Lewis Jr.; Dept. 401-3, S. J. Jones; Dept. 401-6, W. A. Wooding; Dept. 405-0, C. C. Harper Jr.; Dept. 420-1, M. S. Brombach; Dept. 731-0, M. L. Ferrell, G A. Vance; Dept. 756-0, R. L. Hall, M. L. McCrerey; Dept. 987-0, O. C. Scott.

Fifteen-year: Dept. 001-0, E. C. Mackey; Dept. 015-0, A. B. Guassac, G. L. Seyler, P. H. Young; Dept. 016-0, E. D. Peek; Dept. 024-0, A. V. Black; Dept. 056-0, M. E. McNeil; Dept. 125-0, R. E. Thompson; Dept. 127-0, B. C. Barbat; Dept. 130-1, E. J. Wolf; Dept. 131-4, O. K. Fort; Dept. 170-1, D. R. Brown; Dept. 170-9, W. T. Duerson; Dept. 250-2, R. E. Volle; Dept. 250-3, R. H. Collamer; Dept. 250-6, J. Mejia, Jr.; Dept. 300-3, L. D. Skelton; Dept. 400-6, C. Lea; Dept. 401-5, E. Wargo; Dept. 401-6, G. R. Anderson; Dept. 511-1, H. J. Clausen; Dept. 521-6, L. D. Jacobs; Dept. 526-2, J. A. Bray; Dept. 544-5, C. D. McIntyre; Dept. 565-1, H. W. Hem Jr.; Dept. 578-3, B. A. Machado; Dept. 819-0, A. G. McCullough, J. A. Myers; Dept. 836-1, R. L. Biedenbach; Dept. 952-5, D. L. Gray; Dept. 953-3, L. H. Newbrough; Dept. 970-1, J. D. Gowin; Dept. 978-3, L. P. Smith.

Ten-year: Dept. 031-0, F. P. Bumgarner; Dept. 041-0, A. R. Mayes; Dept. 101-2, I. L. Dionne; Dept. 101-7, L. M. Braggs; Dept. 125-0, D. D. Kendall; Dept. 130-1, J. C. Buxton; Dept. 130-3, W. F. Weidenfeller; Dept. 131-4, E. M. Taylor; Dept. 131-5, J. Medina; Dept. 141-2, W. W. Wilimek; Dept. 142-1, A. G. Infeld; Dept. 143-1, J. J. Murphy; Dept. 143-2, H. M. Gallant; Dept. 143-5, N. C. Hall; Dept. 149-5, P. D. Wallman; Dept. 170-1, R. K. Bail, J. M. Roberts; Dept. 191-0, G. Smith; Dept. 194-0, A. M. Hamm; Dept. 195-0, I. R. Kelly; Dept. 250-0, D. J. Insky; Dept. 250-1, L. E. Fitzgerald, B. O. Green; Dept. 250-2, J. P. White; Dept. 250-4, S. Misa; Dept. 250-5, J. C. Rice.

Dept. 300-2, H. Jackson Jr.; Dept. 420-5, J. E. Mulrooney; Dept. 460-0, S. H. Young; Dept. 491-0, G. J. Langford; Dept. 524-0, L. J. Miller, B. J. Wakluk, C. Zuniga; Dept. 526-6, O. H. Sullivan; Dept. 565-1, C. S. Cook; Dept. 574-3, W. W. Huffman; Dept. 575-0, H. R. Auten Jr.; Dept. 578-4, R. J. White; Dept. 592-0, C. H. Purdy; Dept. 733-0, E. Eaton; Dept. 759-0, W. J. Hankins; Dept 780-2, J. L. Jones; Dept. 780-3, M. B. Clapper; Dept. 816-1, V. M. Scroggins; Dept. 832-3, E. O. Bell; Dept. 833-2, F. V. Rojas; Dept. 834-2, A. Pena.

Dept. 950-4, H. L. Obertreis; Dept. 954-1, E. A. Swanson; Dept. 957-2, W. F. Barto, W. E. Kent; Dept. 958-7, R. M. Meyers; Dept. 959-0, L. R. Grokoest; Dept. 961-8, J. E. Horn, R. A. Jones; Dept. 973-1, G. R. Dray; Dept. 973-3, E. H. Adkisson, R. L. Barnhard, A. L. Hatcher; Dept. 974-4, R. L. Stewart; Dept. 979-3, J. C. Frazier; Dept. 985-1, R. J. Stano, D. E. Weaver; Dept. 985-3, G. W. Burris, T. M. Kriegh; Dept. 985-4, W. H. Greer, A. R. Hoch, J. R. Stevens; Dept. 989-9, G. F. Snyder.

Invention Disclosures

CONVAIR

BOCK—E. H., Dept. 962-3. Self-Aligning Probe or Connector.

BOCK—E. H. and R. P. CRAWFORD, Dept. 962-3. Bi-Stable Magnetic Holding Solenoid.

BROWN—K. R., Dept. 988-1. Airborne Wave Height Indicator.

LEADON—B. M., W. V. CARTER, and E. H. GALLAGHER, Dept. 583-1. A Device for Controlling Cooling and Reducing Drag of Vehicles Launched at Supersonic & Hypersonic Velocities Within the Atmosphere.

YOUNG—Robert, Dept. 511-6. Spherical Bearing-Contact Surface Improvement.

Retirements

CONVAIR

BROWN—John G., Dept. 377-2. Seniority date Sept. 10, 1956, retired May 26.

COLLINS—John A., Dept. 019-9. Seniority date Oct. 15, 1946, retired July 6.

GANOE—Ernst A., Dept. 400-3. Seniority date Jan. 19, 1943, retired Sept .2.

HENEGAR—Frank H., Dept. 759-0. Seniority date April 23, 1956, retired Aug. 15.

PHELPS—Marion E., Dept. 131-1. Seniority date Aug. 19, 1957, retired June 16.

SPAREY—Beth M., Dept. 832-3. Seniority date Nov. 19, 1958, retired July 16.

YURCICH—Stephen, Dept. 744-0. Seniority date Jan. 17, 1951, retired Sept 9.

Deaths

CONVAIR

PINNELL—Cecil E., Dept. 974-0. Died Sept. 21. Survivors include his wife, Virginia Mae.

SATTRO — R. L., Dept. 143-2. Died Sept. 18. Survived by wife, Thelma M.; son, Richard L., Jr.; daughter, Mrs. Barbara Swenson; six grandchildren; mother, and two brothers.

Awards

CONVAIR

Employe Suggestion awards approved for the week ending Sept. 9.

Dept. 123, A. K. Raines; Dept. 143, A. R. Townsend; Dept. 454-0, T. D. Schirtzinger; Dept. 780, L. M. Rapp.

Employe Suggestion awards approved for the week ending Sept. 16.

Dept. 001, J. W. Weisman; Dept. 002, J. P. Hood; Dept. 015, D. H. Yaeger; Dept. 149, I. C. Brugger, H. T. Christopherson, H. C. French, L. Liggett; Dept. 250, V. C. Somers; Dept. 454, M. A. Revetti; Dept. 780, B. C. Anthony; Dept. 819, R. J. Hostetler; Dept. 979, M. J. Gardner, K. C. White; Dept. 985, B. R. Lingenfelder.

In-Plant Training

ORIENTATION

NEW EMPLOYES—Educational services staff, Lindbergh Field, ext. 491, Bldg. 14 auditorium, Tuesday, Oct. 11, 4:30 p.m. Kearny Mesa, ext. 1931, Bldg. 17, Room 7, Monday, Oct. 17, 8 a.m.

PROFESSIONAL/TECHNICAL

SALES AND MARKETING FUNDAMENTALS—Monday, 1 to 4 p.m., Bldg. 17, Room 1, Kearny Mesa. Phone J. W. Magill, ext. 1931 KM, for reservations.

ELECTRONIC RESISTANCE WELDING—7 a.m. to 3:45 p.m. Oct. 10-14, Bldg. 17, Room 9, Kearny Mesa. Phone Will Weidenfeller or E. C. White, 1931 KM. Enrollment closed.

SPACE-AGE RELIABILITY—9:10 to 10:10 a.m. Oct. 10-17, Oct. 24-28, Oct. 31-Nov. 4, Bldg. 17, Room 8, Kearny Mesa; 11:30 a.m. to 12:30 p.m. Oct. 10-17, Oct. 24-28, Oct. 31-Nov. 4, Bldg. 14 auditorium, Lindbergh Field. Phone Will Weidenfeller, 1931 KM. Enrollment closed.

EXPLOSIVES HANDLING—9:15 to 10:15 a.m. Oct. 11, Bldg. 17. Room 8, Kearny Mesa. Phone Will Weidenfeller, 1931 KM.

RELIABLE ELECTRICAL CONNECTIONS — Educational services staff. For further information and quota call ext. 1931, Kearny Mesa.

PROGRAMMED SELF-STUDY—A limited number of programmed texts in accounting, computer language, English, shorthand, electronics, electricity, instrumentation, management, mathematics, machine programming, statistics, and value engineering are available in the educational services office, Bldg. 17, Kearny Mesa. These may be checked out for home study. Office hours are from 8 a.m. to 5 p.m., ext. 1931 KM.

AFTER HOURS CLASSES
University of Calif. Extension

FALL SEMESTER — Classes began week of Sept. 26 with registration at first class meeting. All classes will be in Bldg. 17 Kearny Mesa. Courses are: computer programming, Thursdays, 5-8 p.m., Room 7; EDP economic feasibility studies, Mondays, 5-8 p.m., Room 7; introduction to operations research, Tuesdays, 5-8 p.m., Room 8. For information call Warren Newton, ext. 3276 KM.

Societies Plan Joint Meeting

San Diego chapters of the Instrument Society of America (ISA) and the Society of Aeronautical Weight Engineers (SAWE) will hold a joint meeting Oct. 20 in The Town and Country Hotel.

W. A. Wildhack, associate director of the Institute for Basic Standards of the National Bureau of Standards (NBS), will speak on "accuracy in measurement."

He will discuss the NBS role in improving standards accuracy through research and cooperating with technical organizations and industry in measurement problem solving and NBS calibration services and publications.

Wildhack's career encompasses the fields of engineering, physics, aeronautics, missiles, basic instrumentation and measurement administration and teaching. He was ISA national president in 1954.

Reservations are to be made by Oct. 18 with Jeweline Richardson, KM ext. 2296, or ISA boosters. Social hour will be at 6 p.m. with dinner at 7.

Withee Attending Defense Course

W. W. Withee, deputy program director for advanced ICBM programs for Convair division, is one of 10 representatives from industry attending a defense weapons system management course this week at Wright-Patterson AFB, Ohio.

Representatives from industry this year for the first time were invited to the first week of a course given annually at the Defense Weapons System Management Center at Wright-Patterson for Air Force officers and government employes who are prospective systems program office members.

Information on the military services' project management philosophies, system acquisition processes, organization and missions is included.

General Dynamics News

Published by General Dynamics Corporation, One Rockefeller Plaza, New York, N.Y. 10020.

Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

70 Pct. Bond Buying Total Expected

Convair division early last week had 8,252 employes signed up for direct U.S. Savings Bonds purchases through payroll deduction. Additional authorization cards were being received daily at employe services.

James K. Field, chief of employe services, said 63.2 per cent of the division's employes now are buying E-Bonds by deduction and the total is expected to reach 70 per cent. A total of 48.4 per cent of the division's employes were enrolled in the bond deduction program before the current campaign.

DEPTS. ESTABLISH PROGRESS CHARTS

(Continued from Page 1)

the new goal setting program has been implemented.

"There is a lot of enthusiasm for the new program," he said. "And use of the progress charts lets every employe see how well he and his colleagues are progressing."

Typical of goals set by departments at Kearny Mesa are those in budgets Dept. 194-0 where employes are working toward a 100 per cent reduction in tardiness, fewer overtime hours, an increase in cost reduction proposals and keeping departmental expenditures within budget.

Other typical goals or objectives are those which involve a decrease in number of discrepancies, reduction in processing time and increased efficiency.

Most departments have selected goals related to activity that is unique to that department.

The charts serve as a constant reminder.

Magnuson said response to the division's "Do Good Work" pledge cards also has been excellent.

More than 92 per cent of employes had signed and returned the pledge cards by Sept. 15 with the exception of research and development and Eastern and Western Test Range departments. These departments have plans for implementing the program in the near future.

Departments and percentage of employes that had returned the cards included:

General manager, 100; market analysis and planning, 92; community relations, 100; contracts, 98; reliability control, 97; industrial relations, 100; legal, 100; operations, 95; Lindbergh Field operations, 90; finance, 100; launch vehicle programs (on site), 82, and military space programs, 87.

Modification Kit Contracts Awarded

(Continued from Page 1)

Convair will supply aircraft installation kits, mobile training unit kits, and installation tool kits. The division also will furnish spare parts and technical data. Work is presently underway and will continue throughout 1967.

The other order, a letter contract, is for modification kits, technical data, and spare parts, for installing a self-contained unit forward of the cockpit in both F-102s and F-106s to cool the infrared system.

Delivery is scheduled by July, 1967.

Convair designed and developed requirements for both modifications under an engineering support contract.

Both programs will be monitored by the F-102/106 program office. Contracts are administered by Convair service parts.

MARY MINDER, GA, WINS GLASS BOAT

Mary F. Minder of General Atomic held the lucky ticket to win the 14-ft. fiber glass boat at the recent hydroplane races. Mrs. Lee Lemen, also of General Atomic, felt she played a big part in Mary's luck as she sold her the ticket in the Industrial Recreation Council drawing.

Convair Honored

(Continued from Page 1)

signed their names on a banner attached to the Atlas and identifying it as "500th Atlas — Gemini Target Launch Vehicle."

Bowers reviewed history of the Atlas briefly and said Convair division "sees no end to its use" as a space launch vehicle. He read a telegram from Vice President Hubert Humphrey stating:

"Please offer my heartiest congratulations to your outstanding team as you deliver the 500th Atlas rocket. This milestone marks the continuing service of a superb vehicle in furthering our nation's quest for peace. The Atlas rose to America's critical need in defense, re-established our prestige and preeminence in space and continues as a technological workhorse. As chairman of the National Aeronautics and Space Council, I send thanks and best wishes for continued success."

Congratulatory telegrams also were received from Congressmen Bob Wilson and Lionel Van Deerlin.

Mueller outlined accomplishments in the Gemini program including long-duration missions, development of rendevous and docking techniques and use of a propulsion stage for post-docking maneuvers, demonstration of extravehicular capability, development of increasingly accurate controlled re-entry, attainment of flight and ground crew proficiency and performance of 78 scientific, technological and medical experiments.

"This record could not have been accomplished without the contributions of you people at General Dynamics who developed and built the Atlas launch vehicle," he said.

Mueller noted that Convair division has delivered each Atlas used in the Gemini program on or ahead of schedule and on several occasions responded to NASA's request to accelerate deliveries in support of advanced Gemini launch schedules.

"The Atlas launch vehicle has established a record for excellence in overall performance," he said. "The insertion parameters have all been well within specification. The excellence of the Atlas has been exemplified by its outstanding record during the rendezvous missions in meeting the required launch windows."

"I congratulate the Convair division of General Dynamics, its family of subcontractors — and most particularly the dedication and superior workmanship of the individual workers who developed and constructed the Atlas launch vehicle employed with such outstanding success in our country's manned space flight program," he said. "It has been a 'job well done.'"

General Cooper noted that the Air Force has shared a good many "red-letter days" with Convair division for more than a quarter of a century and that "this one marks an important milestone in our United States space program."

"In celebrating the roll-out of the 500th Atlas today, we pay tribute once more to a unique contribution to our country's missile and space programs," he said.

"The Atlas was primarily the product of one man's engineering genius — Karel Bossart's — and of one company's vision for the future — Convair's.

"In the lean years back there in the late 1940's, when the Air Force had little funds to support the 'way out' project known as the Model 7 missile, you people here at Convair carried on with it alone. Your persistence bought us time when the development of an operational missile force became the nation's top-priority defense concern.

"Since that time the Atlas had helped us to close the 'missile gap' and to open the frontiers of space."

Cooper noted that the Air Force accepted the first Atlas 10 years ago (Aug. 29, 1956) and that while Atlas was "still going strong as the mainstay of a new dimension in defense" it began its second and even longer-lasting role as a space booster.

The SSD commander recalled the Atlas role in the Mercury man-in-space program and the launch of Maj. John Glenn in the "Friendship 7" in the United States' first manned orbit of the earth Feb. 20, 1962.

"It was the Atlas that pioneered the boosting of man into space —and it will always be remembered that its record in these potentially dangerous beginnings was 100 per cent success," he said.

Cooper also recalled the Atlas role in boosting the first missile detection satellite, the Mariner II first Venus probe, the Vela first nuclear detection satellite, the Ranger II first mission to return close-up photos of the moon, the Mariner IV first satellite to communicate with earth from 100 million miles in space and the SNAP-10-A first nuclear reactor put into orbit.

He also mentioned ballistic reentry systems tests and maneuverable re-entry tests to be conducted with Atlas boosters in the near future.

"Since July 1, 1963, 60 of the last 63 Atlas space launches have been successful," he noted. "This is a record that would be hard to beat, particularly when one considers the inescapable complexities of the big bird."

Cooper said about half of SSD's Atlas procurement effort is undertaken for NASA and that the Gemini program has been "a remarkable example" of unified effort between industry, the Air Force and NASA.

"Dr. Mueller, as the Air Force accepts this 500th Atlas today and readies it for its Gemini target mission at the Cape, I know you may be assured that this vehicle embodies all the 'tender loving care' that has been characteristic of the entire Atlas program," he said. "Mr. Bowers, Mr. Bossart and members of the Convair team — the Air Force salutes you."

Bowers noted that the 500th rollout came during a "very memorable week" which included use of an Atlas SLV-3 in the highly successful Gemini 11 mission and an "Atlas Day" dinner sponsored by Convair Vandenberg Management Club in recognition of the seventh anniversary of first operational launch of an Atlas ICBM by an Air Force launch crew at Vandenberg.

NASA Orders More Centaurs

(Continued from Page 1)

vehicles brings total number of Centaurs ordered by NASA to 20.

Seven of the 15 previously ordered have been used in research and development flights and two others on operational missions.

Atlas-Centaur 9 (Atlas 174D and Centaur 8D) is being readied for launch from Complex 36B at Cape Kennedy in the eighth and last Centaur research and development flight. Its primary objective will be to demonstrate the engine's two-burn capability.

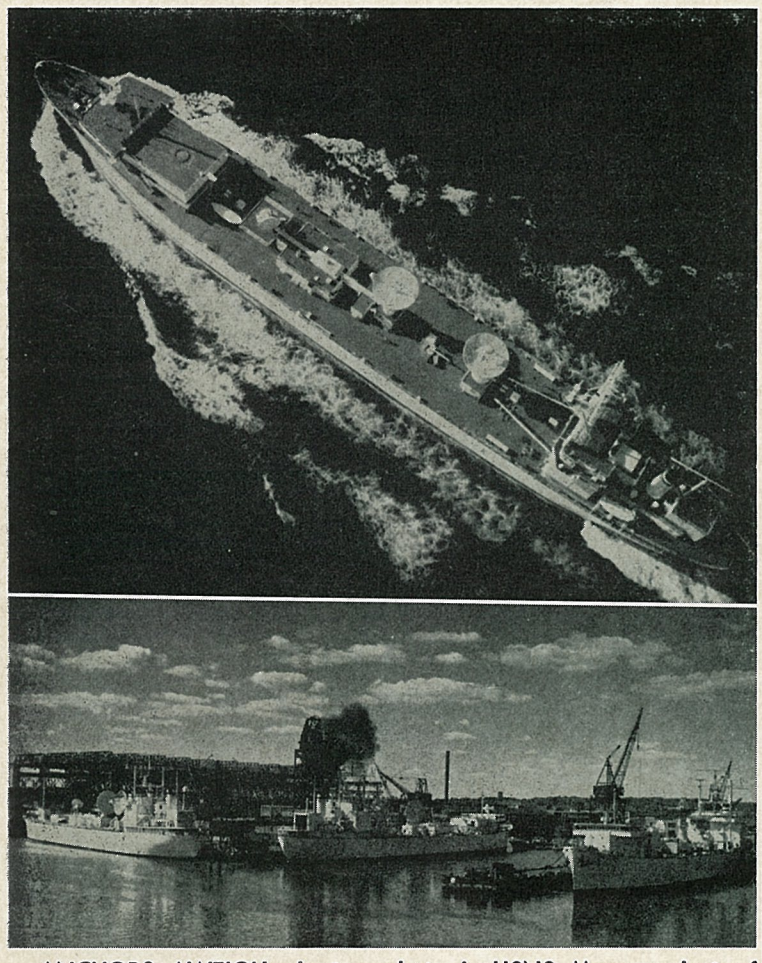
The remaining five Centaur vehicles of the 15 previously ordered are scheduled for use in future operational Surveyor missions.

NASA officials say the 1969 Mariner-Mars flybys will be designed primarily to extend man's knowledge of the Martian atmosphere and visible features of the "red planet's" terrain.

Television cameras aboard the 800-pound Mariner spacecraft are expected to return both high- and low-resolution pictures of Mars' surface with about 10 times the resolution of pictures received from Mariner 4 in 1965.

The spacecraft also are expected to carry an infrared spectrometer, an ultraviolet spectrometer, a celestial mechanics experiment and an S-band occultation experiment.

Jet Propulsion Laboratory has been selected by NASA to supervise the two flybys.



ANCHORS AWEIGH—In top photo is USNS Mercury, last of three electronic instrumentation ships being prepared by General Dynamics at Quincy, Mass., shipyard to support manned missions to moon. Vessel was delivered to U.S. Navy Sept. 16, eight days ahead of schedule. All three ships are shown in lower photo, from left: USNS Vanguard (to be stationed in Atlantic), USNS Redstone (slated for Pacific), USNS Mercury (which will be stationed in Indian Ocean).



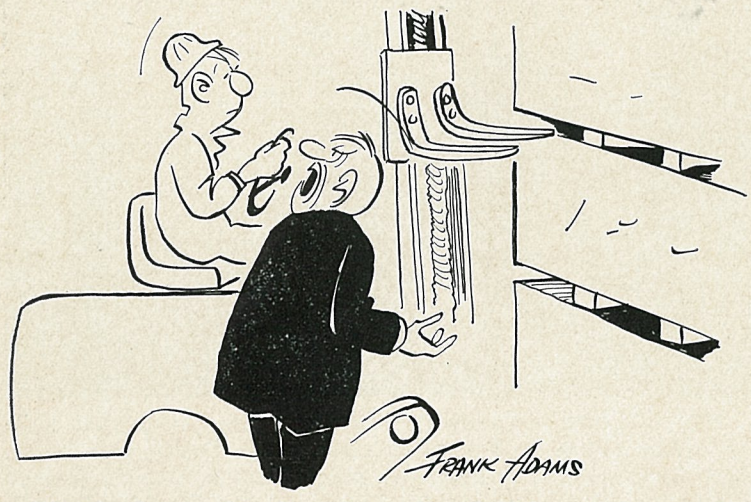
ACCEPTANCE—Capt. John J. Trick of Military Sea Transport Service accepts USNS Mercury, Project Apollo tracking communication ship, from Cdr. Carl R. Brandt, Navy resident supervisor of shipbuilding at Quincy, Mass., who moments earlier had accepted vessel from General Dynamics. Seated right is Roger Lewis, GD president, and at left, Robert V. Laney, Quincy division general manager. Standing are Lewis Emmerich, AIS program director, and Carl Holschuh, GD group vice president for Marine Systems.

People Mobility

Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the Company.)

DOUGLAS C. BURROWS (1942) formerly Corporate Headquarters, to Quincy division as controller; **SYDNEY S. SHERBY** (1966) from Corporate Headquarters to Fort Worth as assistant to the president; **JOHN P. NORVALL** (1953) from Electronics, Rochester to senior design engineer, Convair; **GEORGE H. MOORE** (1960) from Electronics, San Diego to Convair as master scheduler; **GLEN E. WINKLES** (1954) from Pomona to chemical processes, Fort Worth; **RICHARD KEMP** (1958) from Stromberg-Carlson, Rochester, to Electronics, Rochester industrial engineering; **WADE M. BENDER** (1940) from Convair to Electric Boat; **FRANK L. UNMACK JR.** (1958) from Convair to General Atomic; **ROBERT B. BARNES JR.** (1964) from Convair to Corporate Headquarters.



"Just back up and try it again . . . You don't have to keep saying 'I'll take another stab at it.'"

Still More Punch

100-Rounds-a-Second Gatling Gun Added to Armament of F-111A

A fixed-position Gatling Gun — capable of firing 100 rounds of 20mm shells a second — is being installed in the F-111A to give the fighter even greater air-to-air and air-to-ground combat capability.

The gun, which fires from six rotating barrels, comes in a removable "package." The package can be installed in the right-hand side of the weapons bay. It is aligned to the optical sight in the cockpit and controlled by the pilot.

First installation will be on F-111A No. 5, in service at Eglin AFB. A prototype will also likely be installed on F-111A No. 16—then on production airplanes 19 and on.

Ammunition storage capacity for the fixed-gun position is 2,000 rounds of electrically primed ammunition, with empty 20mm cases retained aboard.

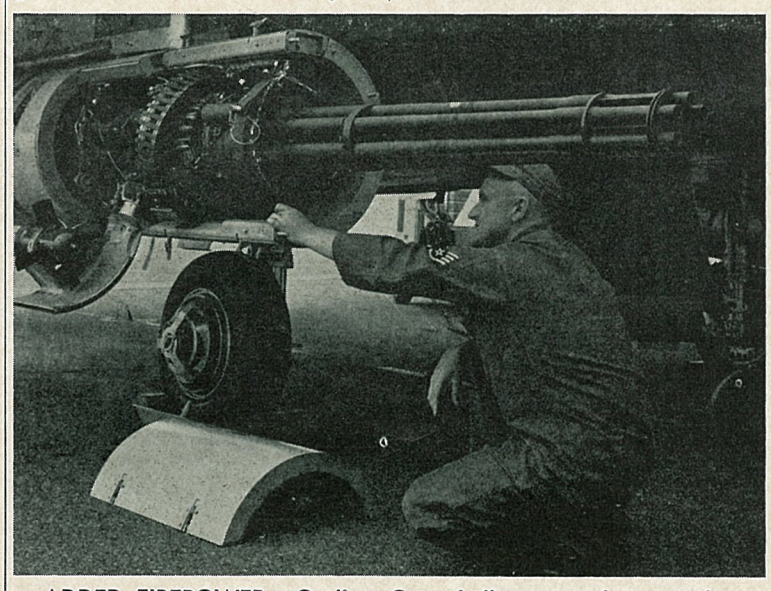
The gun is driven by a hydraulic motor, using hydraulic pressure from the aircraft hydraulic system.

Vulcan gun pods — containing Gatling Guns — are already part of the diverse weaponry which can be attached to the F-111's pivoting pylons.

"If anything, the fixed-gun will give the F-111 added accuracy for air-to-air situations," said Chuck Foster, Dept. 180-2 maintenance engineer.

Foster said the Vulcan pods with Gatling Guns had already been operated successfully in combat.

The fixed-weapon Gatling Gun being installed on the F-111 is the same type weapon housed in the B-58 tail section.



ADDED FIREPOWER—Gatling Gun similar to pod-mounted version above is being installed in F-111 weapons bay. The new fixed-position, six-barrel machine gun fires 20mm shells at 100 rounds a second!

Atlas-Centaur Launch Even 'More Perfect'

Atlas-Centaur 7 (Atlas 194D and Centaur 3D) performed flawlessly Sept. 20 in injecting the second Surveyor spacecraft into lunar trajectory.

Deane Davis, Centaur program manager, said the Atlas-Centaur 7 flight was even "more perfect" than the Atlas-Centaur 10 flight May 30 that sent Surveyor 1 to the moon—"and that one was pretty doggone perfect."

Davis said AC-7 placed the Surveyor B payload into lunar trajectory with such accuracy that it would have landed within 36 miles of its target with no mid-course correction.

The AC-10 flight launching the highly successful Surveyor 1 placed the spacecraft into a trajectory that would have placed it only 250 miles from its target with no mid-course correction.

Among officials from the Kearny Mesa plant at the Cape for the AC-7 launch, in addition to Davis, were Grant L. Hansen, vice president-launch vehicle programs; Andrew Kalitinsky, assistant program director-launch vehicle engineering, and E. E. Barringer, AC-7 project engineer.

Sticking of a boiloff valve on the Atlas delayed the launch countdown and it appeared for some time that it would be impossible to make necessary adjustments and still get the flight away during the available "launch window."

Daniel Sarakon, conductor, and his launch crew resolved the problems and launched AC-7 with only 7/10 of a second left in the "window."

Although the Atlas and Centaur performed flawlessly, a malfunction in the Surveyor control system at the time of mid-course correction caused the spacecraft to tumble in flight and made controlled landing impossible.

Shorter Mooring Planned For Buoy

"Bravo," oceanographic data gathering buoy prototype developed at Convair for Office of Naval Research, was retrieved from its station 18 miles off the coast of Bermuda Islands late last month for adjustment for another stage of its test program.

The buoy was towed to Naval operating base, Great Sound, Southampton, Bermuda Sept. 21. The mooring line will be shortened as a next step in the series which will establish the optimum mooring line length.

The buoy, which has been in the test program for two years, had been moored since Aug. 7 in waters 12,000 ft. deep off Bermuda.

Eight Research Years Devoted To Hunt For Heat-Tough Metal

What kind of materials can withstand the searing heat that tomorrow's manned spacecraft and hypersonic airplanes will encounter?

All the answers aren't known at this juncture. But Fort Worth division metallurgical engineers — thanks to eight years of research — are finding many of the solutions.

Basically, the answer lies in refractory metals like columbium, with a melting point of 4,450 degrees F.; molybdenum, at 4,750 defrees F; and tantalum, at 5,450 degrees F.

"These materials can withstand re-entry temperatures which range upwards of 2,000 degrees F.," said W. T. Kaarlela, project engineering metallurgist. "But they need to be blended with the proper alloys to give them the necessary strength and flexibility.

"Our research has given us suitable brazing alloys, plus the capability and know-how to braze refractory metal sandwich structure 'hardware.'"

(Brazing is the process of joining by liquification of a second lower melting-point metal.)

The research began in 1957 with a feasibility study on brazing molybdenum for honeycomb sandwich application.

"We found that none of the commercially available brazing alloys worked with molybdenum," Kaarlela said. "This started us on a special alloy development program."

A number of experimental alloys were formulated and arc-melted over the next few years. By 1962, alloys were developed resulting in brazed columbium sandwich with 100 per cent efficiency at 2,000 degrees F.

"We've since discovered that many of the brazing alloys are useable with columbium, molybdenum, and tantalum," Kaarlela said.

Engineers also developed the "con-rad process" for brazing sandwich panels. "Certain problems with this process still need development," Kaarelela said, "but we're satisfied with progress to date."

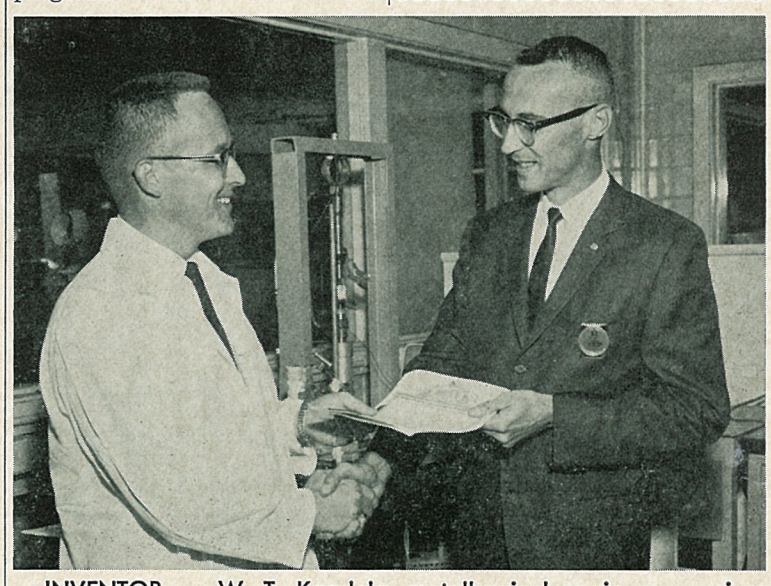
Kaarlela feels many applications for the more heat-resistant alloys can be found.

"For example," he said, "one of our alloys shows promise as a turbine blade in high-performance jet engines. This would enable the engine to operate at even higher temperatures."

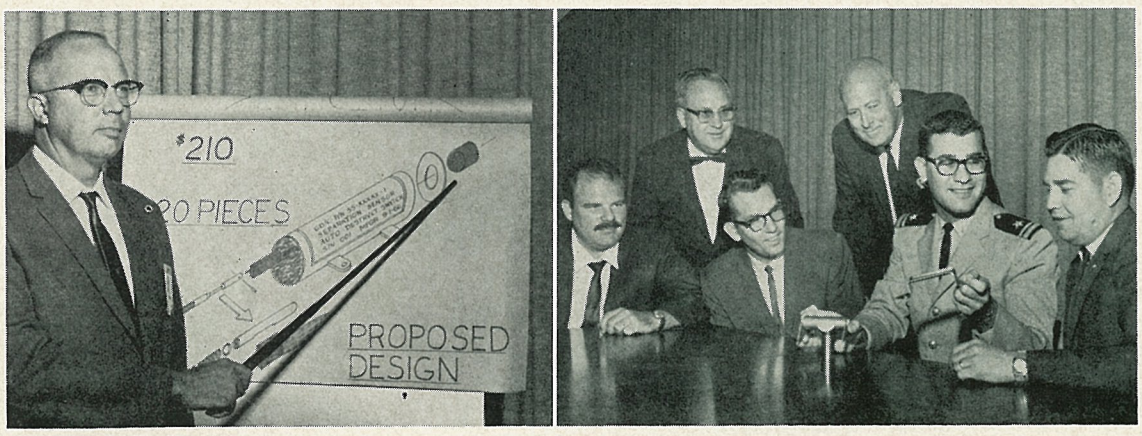
High Temperature Alloys Patented

W. T. Kaarlela, Fort Worth project engineering metallurgist, has been issued eight patents, four of which have been for alloys resistant to high temperatures."

His latest consists of titanium and chromium, with lesser amounts of columbium and germanium.



INVENTOR — W. T. Kaarlela, metallurgical engineer, receives patent for "Alloys Resistant to High Temperatures" from C. M. Woodward, Fort Worth division patent counsel.



WORKSHOP RESULTS—O. B. Aman, spokesman for one of four teams in recent Convair division Value Engineering Workshop, in photo at left, describes team's proposal for simplification of Centaur inadvertant separation switch. In right photo, Lt. (jg) Thomas A. Crescenzo of Navy Industrial Management Office, displays inexpensive single-piece mechanism his workshop group believes could be used to replace four-piece machined device in Navy mines. Others left to right, are D. S. Oesterle, W. H. Evans, R. L. Northup, D. C. Basore and L. J. Brown.

Value Engineering Workshop Develops Four New Designs

Seventeen Convair division men and a Navy lieutenant last week completed a two-week Value Engineering Workshop at the Kearny Mesa plant in which they learned VE principles, then applied them in redesigning hardware now being used or produced by the division.

Jack L. Bowers, Convair general manager, spoke at the "graduation" session Sept. 26 and urged them to continue with "a questioning attitude" and in "applying the methodology learned" as they returned to their regular duties.

Those enrolled were divided into four groups for analysis and "creative thinking" sessions in which they developed simplified and less costly designs they believe could be used in place of currently used OV1 vertistat boom assemblies, OV1 bulkhead separation systems, Navy mine ballast securing mechanisms and Centaur inadvertent separation switches.

Team 1 suggested a simplified motor drive for the OV1 vertistat assembly that members believe would maintain required reliability while reducing unit cost by 58 per cent for a total possible future savings of more than $100,000.

Members of the team and their departments were E. D. Melton, 146-4; Arnold Ritter, 581-6; T. M. Sammon, 973-1; R. H. Wiant, 572-0, and Robert Young, 511-6.

Team 2 proposed an alternate OV1 bulkhead system for providing needed support for the spring-loaded separation cylinders and nose fairings that members calculated could save the division $8,714.

Members were J. C. Nelson, 146-1; J. A. Rutkauskas, 545-4; L. C. Simek, 970-1, and C. B. Wells, 566-2.

Team 3 members concluded that a single-piece door-handle-type mechanism of their design might serve all required functions of an intricate four-piece welded assembly now being used in the Navy mines. If their theory proves accurate, savings to the Navy and Convair could total more than $90,000.

Members of the team were Lt. (jg) T. A. Crescenzo of the Naval Industrial Management Office in San Diego; L. J. Brown, 145-0; W. H. Evans, 423-0; R. L. Northup, 542-0; and D. S. Oesterle, 584-1.

Team 4 members designed a 20-piece assembly they believe would perform all required functions with higher reliability than a 110-piece inadvertent separation switch now being used in the Centaur-Surveyor interface. Their design, if practical, ultimately could save an estimated $36,115.

Members of the team were O. B. Aman, 553-2; L. W. Kerner, 970-1; G. W. Megeath, 193-3, and B. S. Wallach, 532-1.

Presentations to management on the teams' work at the final workshop session were made by Ritter for Team 1, Nelson for Team 2, Lt. Crescenzo for Team 3 and Aman for Team 4.

W. E. Willcutt and D. C. Basore were project leaders. Everett Lindem, educational specialist in Dept. 130-3, was workshop coordinator.

E. D. Heller, cost reduction and value control manager, discussed value engineering philosophy at the first workshop session Sept. 12. Lloyd Curtis, a value engineer in Dept. 561-0 also spoke.

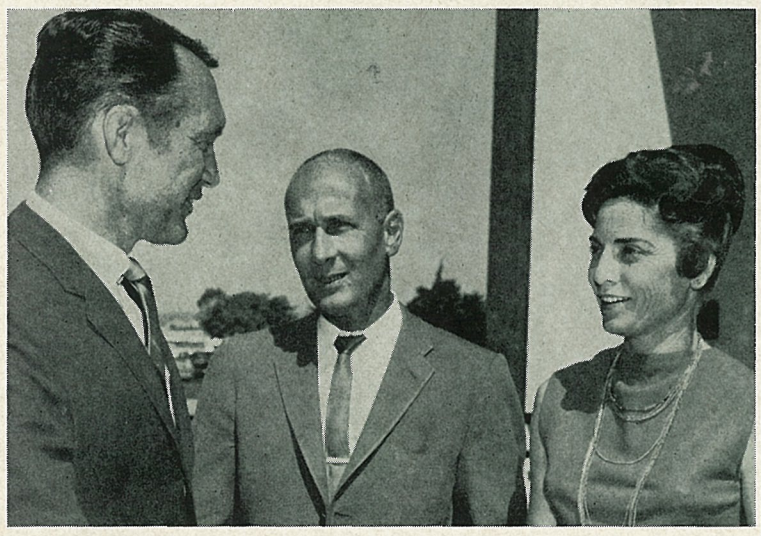
Award Winner Tours Kearny

Cidney Brooks, a Convair division production delivery analyst in Dept. 985-4 at Vandenberg AFB, toured the Kearny Mesa plant with her husband Sept. 20 as a result of having won a three-month Employe Suggestion contest at Vandenberg.

Her husband, Richard Brooks, is an Air Force senior master sergeant who has been "flying" Atlas missiles from Vandenberg for six years as a launch crew supervisor.

Mrs. Brooks' suggestion eleminated inclusion of unnecessary MAPCHE punched card decks in copies of all Atlas SLV checkout procedures being issued for use by quality control personnel.

The suggestion is expected to save the division $687 in reproduction costs during the next year.



CONTEST TOUR — Cidney Brooks, right, winner of Employe Suggestion contest at Vandenberg AFB, and her husband, Richard, center, confer with Ray T. Blair. assistant to Convair general manager. Tour of Kearny Mesa plant was contest award.

GD Men Teach For Extension

General Dynamics part-time instructors on the faculty of the University of California Extension for the fall semester include ten from Convair division and one from General Atomic.

Ysef R. Rashid, General Atomic staff member, is teaching Metric Methods in Engineering Mechanics.

Convair men are: Richard W. McGuire, senior research engineer, Elements of Production and Operations Research; Frederick D. Schwend, senior EDP programer, Introduction to Information Processing and Computer Programming and another course in Computer Programming; Charles K. Twohey, data systems supervisor, EDP Economics and Feasibility Studies; Robert W. Swanson, master scheduler, Management Information Systems; James M. Jones, chief of material estimating, Cost Estimating and Contract Pricing; J. B. Hurt, Convair 600 program manager, Program Management.

Alan W. Nelson, advanced systems dynamics, Introduction to Linear Control and Systems; Raymond A. Elliott, design specialist, The Logic Design of Digital Nets; Jack J. Block, contract administration, Scientific and Technical Writing; James F. Haskins, chief of materials research, Special Problems in Modern Engineering.

Callihan Appointed CRA Commissioner

H. W. "Hank" Callihan is succeeding Gerry Wright as commissioner of the CRA Sports Car Club, J. K. Field, chief of employe services, announced at the last CRA Council meeting.



Hank Callihan

Wright, who has headed the group as commissioner for 12 years, retired from the Company the first of this month. He also had served as president of the CRA Council for three terms.

Callihan has been an active member in the Sports Car Club for 10 years and was one of the group instrumental in establishing the club's garage facility at Gillespie Field four years ago.

He's held every office in the club, except president. He has spearheaded many rallies and events, and participated in most with his 1954 Austin-Healey.

Callihan joined Convair 27 years ago in engineering.

Judy Watson Tops Horse Show Field

Judy Watson, wife of Dave Watson Sr., outpointed the field at CRA Riding Club's Sept. 18 horse show. Mrs. Watson's 31½ points were six more than her nearest competitor, Jan Kreis.

Some 50 individuals entered the events, mostly Western Pleasure and Western Horsemanship, and conformation and obedience.

Mail Will Get There Faster If Address Carries ZIP Code

Next week (Oct. 10-15) is national "ZIP code week" and Douglas Zink, Convair office services supervisor, reminded employes of the importance of using the five-digit code on all outgoing mail.

"Use of the ZIP code aids U.S. Post Office employes just like use of plant mail zone numbers helps us in the Convair mail rooms — it cuts handling time and speeds delivery," he said.

The first digit in the ZIP code denotes one of 10 geographical sections of the country, the second a part of the geographical section, the third a "sectional center" city and the fourth and fifth an "associate city" or zone within a multi-zoned city.

Use of the ZIP speeds the mail direct to the nearest "sectional center," eliminating unnecessary handling at terminals and distribution points along the way.

Zink urged Convair division personnel to observe "ZIP Code Week" by binging mailing lists up to date by adding the ZIP code as the "last word" in each address.

As a first step toward mandatory use of ZIP, all bulk second and third class mail will be required to carry the five-digit number effective Jan. 1. Any Post Office can provide code numbers for other cities.

Zink pointed out, also, the importance of having correspondents use plant mail zones on all incoming mail for faster, more efficient service.

Mail arriving without plant mail zone must be set aside and "researched" before it can be delivered.



LAST WORD—James E. McCann, Convair mailroom and distribution assistant supervisor, reminds General Dynamics employes that five-digit ZIP code should be "last word" in address on all outgoing mail.

Lunch Hour Demonstrations Mark Fire Prevention Week

All Convair facilities will join other industries throughout the country in national observance of Fire Prevention Week next week, Oct. 9-15.

Posters drawing attention to the importance of fire prevention as a means of saving lives, property, and money are going up at Kearny Mesa, Lindbergh Field, Point Loma Test Site, Harbor Drive Test Site.

Demonstrations in the use of fire extinguishers will be held every day next week, Monday through Friday, between 11 a.m. and 1 p.m., at both Kearny Mesa and Lindbergh Field plant fire stations.

All employes are urged to spend at least one of their lunch periods to find out how to operate extinguishers and which to use for different kinds of fires, Fire Chief Del Dimmitt said.

No other special events are scheduled during the designated week, Dimmitt explained, since the division's policy is to make fire prevention a year-round activity, not a single week observance.

In supporting this long-range program, Dimmitt serves as a member of the San Diego Chamber of Commerce committee on fire prevention.

"We have been extremely fortunate this year to have suffered very little fire loss and had no major fires at any of our plant facilities," Dimmitt said. "In fact, the only actual dollar loss was $25 in August when a burned-out motor damaged the air conditioner unit in Bldg. 5 at Kearny Mesa."

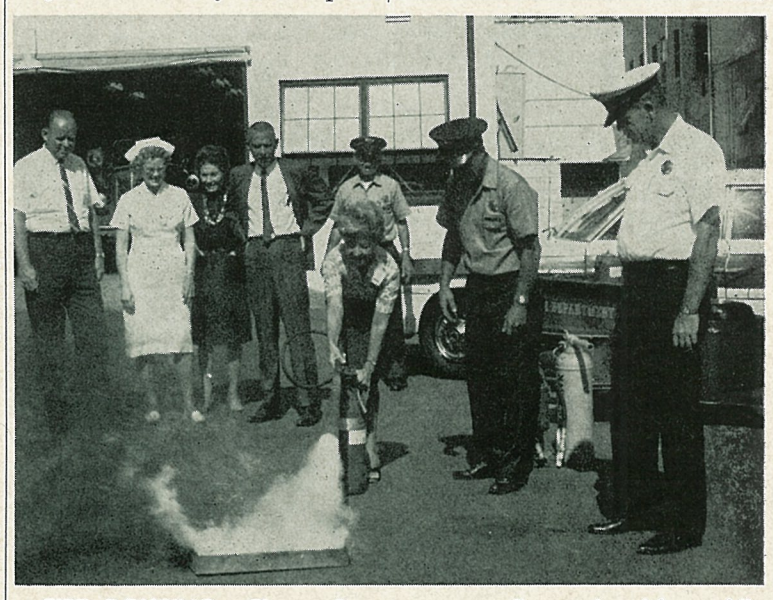
Stan Sharp, manager of industrial security, joined the fire chief in urging all Convair employes to rededicate themselves to the prevention of fire, by observing every possible safety measure on the job and at home, and by remaining constantly vigilant at all times.

S-C Data Products Users Will Confer

"Creative Man Among His Servant Machines," will be the subject of Ray Bradbury, author and science fiction writer, who will be guest speaker at the Nov. 3 luncheon meeting during the annual conference of UAIDE, Oct. 31-Nov. 3, at Vacation Village Hotel in San Diego, Calif.

UAIDE (Users of Automatic Information Display Equipment) is composed of data processing personnel from organizations employing equipment for recording computer-generated data in graphic and alphanumeric form.

Most of the members have leased or purchased equipment from Stromberg-Carlson's Data Products division, San Diego.



FIRE DOUSING—Cherry Patterson uses fire extinguisher while on-lookers include Dr. B. E. Ammundsen, Evelyn Carson, Mae Taylor, Paul Veal, manager of Lindbergh Field industrial relations, fireman Robert Loeper, Fire Marshal Hugh Rae and Fire Chief Del Dimmitt. Demonstrations will be given at fire stations at both plants throughout next week.

Men's Doubles Tennis Tourney Will Wind up CRA Net Season

Men's doubles play in novice, intermediate and advanced classes next weekend (Oct. 8 and 9) will wind up the CRA fall tennis tournament.

Late entries for the doubles must be submitted today (Oct. 5) to Bob Herold, KM ext. 3392, or Bill Connor, KM ext. 1221.

In tournament play completed earlier, there were 16 contestants in novice, 32 in intermediate and 16 in advanced classes with four entries in a master's round robbin and seven teams playing in a mixed doubles round robin.

Bob Stecker, son of L. M. Stecker of Dept. 958-6, defeated D. A. Smith of General Atomic, 4-6, 6-4 and 6-3, to take the novice crown.

Navy Lt. Bart Strong downed Barry Farwell, General Electric representative, 6-2, 4-6 and 6-4 to take the intermediate title and John Cannau, Dept. 966-1, defeated Dan McLaughlin, 7-5 and 6-4 for the advanced class win.

Stan Griffin of Dept. 508-0 won the master's round robbin with Dave Bennett runner-up. Bill Connor, Dept. 403-2, and Vicki Jensen won the mixed doubles round robbin with Ruth and John Bennett runners-up.

Women's singles play was being held last Saturday (Oct. 1).

MEXICO AND SPAIN TOURS PROPOSED

Three tours to Mexico and Spain will be sponsored by Convair Management Club during the next few months for all General Dynamics people.

Jim Hardison, the club's foreign tour chairman and tour conductor, will take a busload on an afternoon and evening tour of Tijuana on Nov. 5. The annual Management Club - sponsored Christmas trip to Mexico City and Acapulco will be from Dec. 23 to Jan. 8. A longer, three-week tour by air to Spain is scheduled for the first time next August, if there is enough interest, Hardison said.

He is asking for a show of hands on one or all three of the tours. Interested travelers may call him at his home phone, 276-5805.

The Tijuana sightseeing trip will show visitors a side of the border city which is little known and never discovered by the tourist. The group will visit guitar and tortilla factories and the new hand-blown glass factory; have dinner at the Country Club; and take in the jai alai games.

Complete cost of transportation by chartered bus, dinner and tip, and all admissions is $11 each. Departure will be from the Bldg. 19 north parking lot at 1 p.m.

Iris Oster's Putter Leads to Victory

Iris Oster was low-putter in Flight A and Doris Parker low in Flight B to win CRA trophies at the General Dynamics Women's Golf Club's first 18-hole tourney Sept. 10 over Coronado course. Putts were the only strokes counted.

Other Flight A winners were Mary Ransom, second; D'Ann Stinson, third; Vi Hurst, fourth; Clara Granat, fifth.

Flight B winners were Jean Hawthorne, second; Vi Gilbert, third; Dorothy Bunker, fourth; Jerri Cooper, fifth.

Florence Kell won the "crying" towel for most putts.

Next tourney for the ladies will be Saturday, Oct. 8, at Tecolote Canyon. First tee-off time is 8 a.m.

Any GD woman is invited to enter the monthly tournaments as a guest or is welcome to join as a participating member. Call Jerri Cooper, ext. 1210 LF, or 295-2392 after work.

Miller and Rustad Win North-South

Tony Miller and Mitzi Rustad won North-South honors and Mr. and Mrs. Dave Borkenhagen, East-West, in Sept. 23 CRA Bridge Club play at CRA Clubhouse.

Winners in Sept. 16 play were Mr. and Mrs. Burton Grindstaff, North-South, and Mr. and Mrs. Don Abernathie, East-West.

Club members were playing in a sectional competition last Friday (Sept. 30) at the Catamaran Hotel.

Salvage Yard Sale Set For LF, Oct. 15

This month's employe sales day will be a week from Saturday, Oct. 15, at the Lindbergh Field plant salvage yard, adjacent to Gate 5. Sales hours are from 8 a.m. until noon. Children are not permitted in the yard.

CRA Trailer Group Goes to Fallbrook

Twenty two members of the CRA Travelers trailer club with nine trailers attended the Travel Trailer Clubs of America district rally Sept. 23-25 in Fallbrook.

Blair Peterman, club president, won a "liar's contest" — with a story he insists is true. The Clarence Walkers and George Hattendorf won prizes in a drawing.

Next outing will be a rally Oct. 15 and 16 in Hemet. Call Virg Marshall, KM ext. 3541.

Radio Club Offers Equipment For Sale

Convair Radio Club has several pieces of transmitting and receiving equipment for sale.

Included are an SX101A receiver, an HT32A transmitter, an HT33A linear and a Communicator III six-meter transceiver—all in excellent condition.

The equipment can be seen at 7:30 p.m. tomorrow (Oct. 6) at a meeting in CRA Clubhouse. Call Fred Schulz, KM ext. 1392.

First Lobster Dive Slated For Sunday

Delta Divers will have their first lobster dive of the season Sunday (Oct. 9) at Cardiff.

Bill Howard, George Jonilonis and Rod Johnson were high-point men in the scavenger dive Sept. 18 at Alligator Head Rock in La Jolla.

Delta Divers' next meeting will be at 7:30 p.m. next Wednesday (Oct. 12) in CRA Clubhouse.

CRA Calendar

(For information on CRA activities call CRA Headquarters, KM ext. 1111. Deadline for copy for the next issue of GD/NEWS is Oct. 12. Call ext. 1071 LF or 3322 KM.)

★ ★ ★

ADVENTURERS—Next meeting Oct. 19, 7:30 p.m., CRA Clubhouse.

BADMINTON — Play Mondays, 7-10 p.m., Federal Bldg., Balboa Park.

BRIDGE — Play every Friday, 7:30 p.m., CRA Clubhouse.

CAMERA CLUB — Meeting and quarterly contest Oct. 16, 7:30 p.m., Photo Arts Bldg., Balboa Park.

CERAMICS — Meetings Tuesdays and Thursdays, 7-10 p.m., CRA Clubhouse.

CHESS — Play Wednesdays, 7:30 p.m., CRA Clubhouse.

COINEERS — Meeting Oct. 19, 7:30 p.m., Convair cafeteria, Lindbergh Field.

FENCING — Workouts and instruction Fridays, 7:30-10:30 p.m., YWCA, 10th & C Sts.

GARDEN CLUB — Meeting tonight (Oct. 5), 7:30 p.m., Floral Association Bldg., Balboa Park.

ICE SKATING — GD skate nights Thursday, 6:15-7:45 p.m., Mission Valley Ice Arena.

PISTOL CLUB — Club shoot Oct. 9, 9:15 a.m., SD Police Range, Federal Blvd. and Home Ave.

RADIO CLUB — Meeting Oct. 20, 7:30 p.m., CRA Clubhouse radio room. Call Fred Schulz, ext. 1392 KM.

RIDING CLUB — Meeting Oct. 12, 7:30 p.m., CRA Clubhouse. Open show Oct. 30, CRA horse ring.

ROCKHOUNDS—Talk on Sea Lab II Oct. 12, 7:30 p.m., CRA auditorium. Public welcome.

ROLLER SKATING — GD skate night Oct. 17 at Skateland. Tickets at employe services.

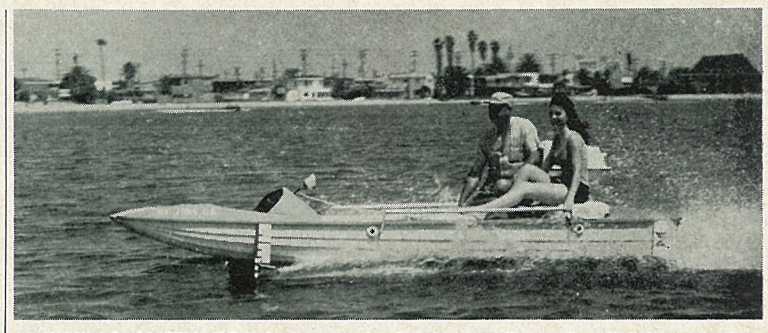
SCULPTURE — Workshop sessions Mondays, 7:30-10:30 p.m.

SPORTS CAR CLUB—Meeting Oct. 12, 7:30 p.m. in Convair executive dining room, LF.

TOASTMASTERS — Convair Toastmasters No. 3745 meet Wednesdays, 4:15 p.m., Dynamics Toastmasters No. 457 meet Thursdays, 5:15 p.m., both in CRA Clubhouse.

TOASTMISTRESS CLUB — Serra Mesa Club meets first and third Mondays, 7:30 p.m., CRA Clubhouse.

TRAILERS — Road Runners to join Hemet Rally Oct. 15-16. Next meeting Oct. 27, 7:30 p.m., CRA Clubhouse.



FLYING WITH FOILS — J. J. Szakacs, Convair division design engineer, and Mary Thomas, 17, start test runs using new hydrofoils designed by Szakacs for use on small boats.

Off The Water

Simple System of Hydrofoils Developed For Small Boats

J. J. Szakacs, a design engineer in Convair division's Dept. 512-2, has developed a new, relatively unsophisticated hydrofoil system that he believes may revolutionize small boating.

Szakacs has been building twin-hull sailing craft for 20 years as an avocation and researching and testing hydrofoils for small boats for more than two years.

He says the foil system on his Sea Cat-14 is ideal for boats 14 feet in length or less.

The foils raise the boat, powered with an 18-h.p. motor, eight inches out of the water with one person aboard and four to six inches with two or three persons aboard.

"This is high enough to clear wakes of other boats and makes for faster, smoother boating," he said. He estimates speed increase from 33 to 42 pct., depending upon weight in the boat.

The foils also have been "test flown" with small craft with 35-horsepower motors, also with excellent results, he said. With a little practice, the foils can be installed or removed in four minutes.

Szakacs currently is developing a rotary combustion motor that he hopes to test on outboard and inboard boats and perhaps on small helicopters and light planes.

Cosmo Bums Repeat Victory In Plant Fast-Pitch League

Winning teams in CRA-sponsored softball league play received trophies at an awards dinner in the executive dining room at Kearny Mesa.

Cosmo Bums won fast-pitch league competition for the second consecutive year by shutting out Flight Control 4-0 in a playoff. The Bums completed the first half of the season with a perfect six win record and the two teams were tied in second half play with 5-1 records.

Electronics-SD's Bombers topped Plastic Department in two straight games, 10-4 and 10-3, to win the double elimination tournament in slow-pitch softball. Nine teams competed.

Test Lab drubbed Bullet Biters 11-2 and 5-2 to win the National League title in slow-pitch. Bullet Biters had taken first half honors with a 4-1 record. Test Lab and GASP each finished second half play at 4-1 and Test Lab won the playoff 6-4.

Floxers won the American League slow-pitch title with two straight wins over Stromberg-Carlson, 5-1 and 6-3, after the Floxers had won first half honors and Stromberg-Carlson second half, each with five wins.

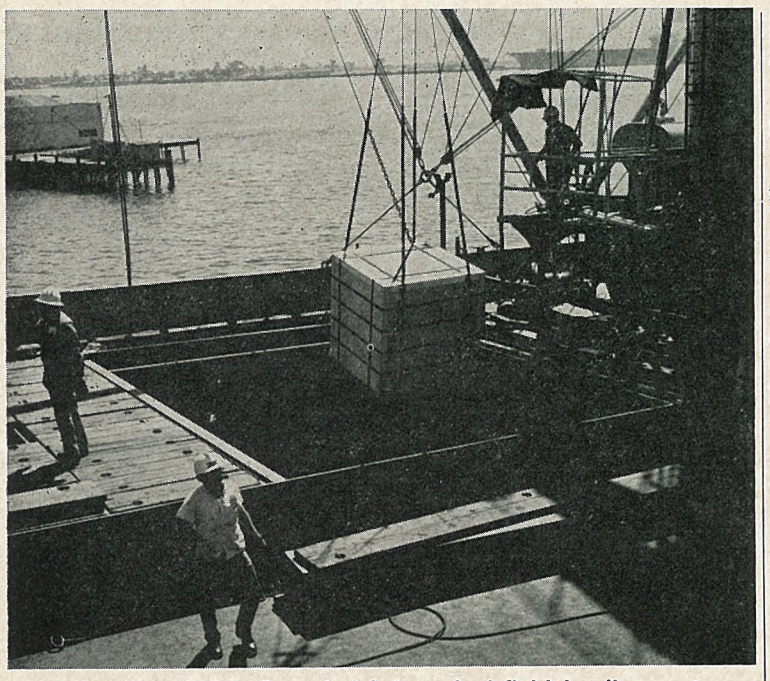
The Floxers then went on to win the overall slow-pitch championship with 12-4 and 2-1 wins over Test Lab.

LENS CLUB CHANGES MEETING DATES

CRA Camera Club has changed its meeting dates from two a month to one on the third Sunday of each month. Formerly the club met the first and third Sundays. Meetings will continue to be held in the Photo Arts Bldg., Balboa Park, at 7:30 p.m. Next meeting will be a quarterly contest on Oct. 16. Visitors are welcome.



CHAMPIONS ALL—Winning teams in CRA softball play were Cosmo Bums (upper left) in a fast pitch league; Floxers (upper right) in American League slow pitch; Test Lab (lower left) in National League slow pitch and Electronics-SD Bombers (lower right) in double-elimination slow-pitch tournament. Cosmo Bums pictured are Fred Todd, Whitey James, Charles Lawson, John Nelson, Bill Alexander, Gene Grey, Dan Parnell, Bruce Fowler, Gene Shuler, Jim Miller ,Scott Davis, John Whitney, Jim Campbell, Don Calac and Grady Tyron. Floxers are G. L. Titzer, G. D. Scherer, G. A. Thompson, W. J. Jankowski, John Silva, C. V. Stubbs, Maurice Tompkins, P. J. Mihelich, J. G. Helleis and J. W. Evans. Test Lab team members are B. A. Ganoe, J. W. Routson, J. E. Rogers, J. P. Jones, K. F. Maloney, D. H. Holzer, V. L. Booth Jr., R. T. Tuttobene, R. D. Crouse and R. W. Swanson. Electronics-SD Bombers pictured are R. D. Sisemore, W. A. Erholtz, S. B. Beard, C. L. Creager, D. F. Jenkins, B. J. Early, A. L. James, J. B. Evans, L. L. O'Neal. J. D. Barbieux, C. K. Keach, R. V. Villanueva and A. J. Catalano.



INTO THE HOLD—Convair-fabricated airfield landing mats are swung aboard freighter Fairport bound for Southeast Asia. This was first overseas shipment for military.

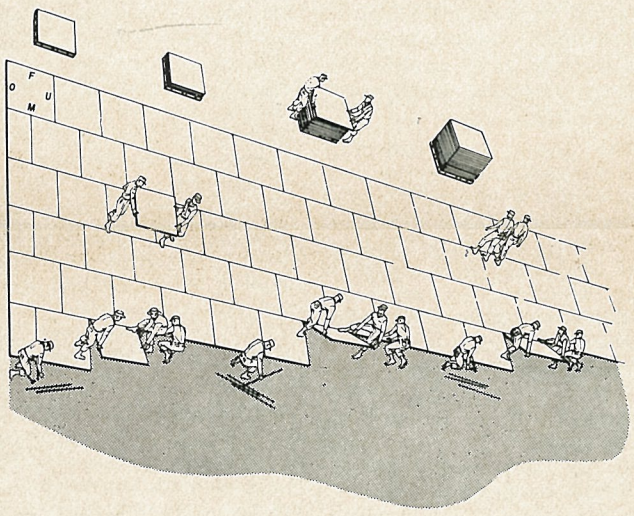
First Airfield Landing Mats Leave Convair For Far East

First overseas shipment of airfield landing mats left San Diego port last month, bound for Southeast Asia.

The honeycomb-core aluminum mats are being fabricated at Convair's Lindbergh Field division under a subcontract for Kaiser Aluminum Chemical Corp., Oakland, Calif. Kaiser Aluminum is prime contractor for the Air Force.

Boxed pallets of mats were loaded aboard the freighter, Fairport out of New York, on Sept. 16. The shipment consisted of 930 pallets, each containing 32 separate mats, or approximately 500,000 square feet of matting.

Convair trucks its daily output of mats to the staging area at Navy pier where they are stockpiled for future shipment. According to C. L. Jackson, ALM program manager for Convair, the semi-automated assembly line now is running at the planned production rate.



INSTANT AIRFIELD—Well, maybe not quite, but almost! Complete airfield can be laid in about three days. Artist's drawing shows typical mat handling procedure.

Space Systems Families Visit Convair For Tour of Plant

Officers from Air Force Space Systems Division headquarters in Los Angeles and their families were guests of Convair division last month for a briefing and plant tour at Kearny Mesa and a picnic at CRA Missile Park.

Richard W. Keehn, Convair's Atlas SLV manager, briefed the visitors on General Dynamics and Convair division products and capabilities. A film on the life support system built by the division for NASA's Langley Research Center was shown.

The group saw the computer center and visited life sciences laboratories, Atlas and Centaur final assembly areas in the factory and electronics manufacturing facilities.

Representatives of launch vehicle programs departments and their families served as hosts.

Children of the SSD families enjoyed riding the train and merry-go-round at Missile Park. The picnic lunch was catered by Gil Hutter, Prophet Co. cafeteria manager at Kearny Mesa.

Dialmaster/Marine Telephone System Ordered From S-C

Two contracts to provide automatic dial telephone systems to be used aboard cargo ships and landing platform docks have been awarded Stromberg-Carlson.

The Newport News Shipbuilding and Dry Dock Company has ordered four systems for cargo ships now under construction. A contract from the Lockheed Shipbuilding and Construction Company calls for systems to be used aboard two landing platform docks.

Both contracts are for Stromberg-Carlson's recently developed Dialmaster/Marine system. This system, using standard XY switches and other telephone componentry, is modular in construction and provides a size advantage since it reduces the space required for the attendant's console to one-tenth that previously needed.

Utilities Underwrite Battery Research By General Atomic

Fourteen electric utility companies have joined with General Atomic division to accelerate development of a zinc-air battery designed to propel vehicles and help reduce air pollution.

The 14 investor-owned utilities will underwrite more than $150,000 of the battery program during the remainder of 1966, supplementing work already in progress under a joint program, begun in 1964, of the Edison Electric Institute and General Atomic.

Because of its high energy density, the zinc-air battery is a potential source of motive power for such vehicles as industrial trucks, stop-and-go delivery vans, city buses and even commuter-type automobiles of the future. It would have longer range than batteries currently available.

Research Submarine Makes Cable Survey

The two-man research submarine Asherah has been leased by the U. S. Department of Interior for an underwater cable survey off the coast of Oregon to last approximately two weeks.

Asherah is owned by the University of Pennsylvania Museum and is leased through Electric Boat division, builders. EB provides operating and support personnel. The submarine is based at Marine Technology Center, San Diego.

Asherah has already performed scientific research missions in the Aegean Sea, the Atlantic and the Pacific.

B-36 To Be Featured In History Journal

An article on the B-36, "The Bomber That Never Bombed," is featured in the Nov. 1 issue of The Aerospace Historian, official journal of the Aerospace Historical Foundation.

The story was written by Dave Karten, special assistant to Lt. Gen. T. P. Gerrity, deputy chief of staff for Systems and Logistics at headquarters, U.S. Air Force.

Veteran GD Finance Executive Takes Quincy Controller Post

Douglas C. Burrows, a veteran General Dynamics executive who helped establish three of the Corporation's divisions, has been appointed controller of the recently formed Quincy surface ship division.

He will be the division's chief financial officer, responsible for all accounting and financial matters, according to General Manager Robert V. Laney.

Burrows rejoined General Dynamics last month after a two-year leave of absence to serve as a management and financial consultant to NASA.

He joined Consolidated Vultee Aircraft Corp., a predecessor of General Dynamics, in 1942 and helped form its aircraft division in Fort Worth, Texas. There he advanced from chief of cost accounting to controller and assistant division manager.

In 1951, he helped establish the Pomona division. He was assistant division manager with financial and administrative responsibilities.

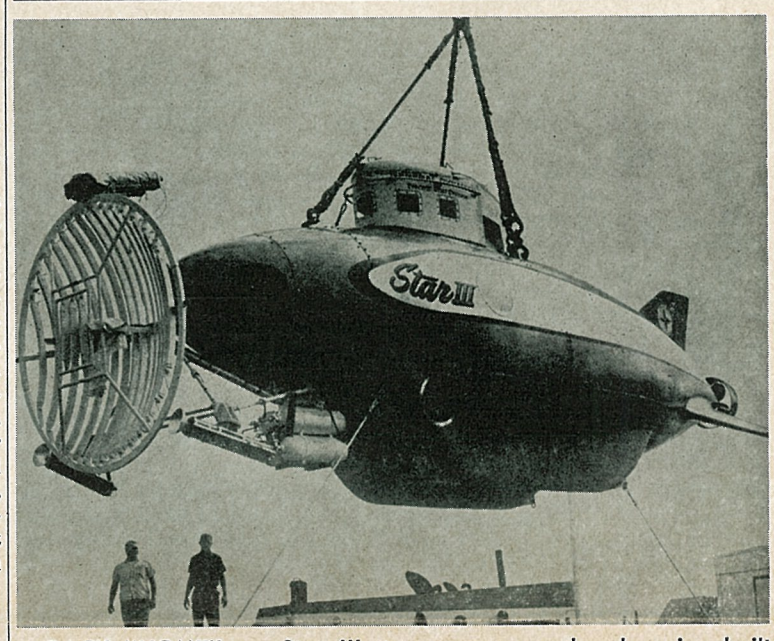
In 1954, as controller of Convair division he played a key administrative role in establishing the Astronautics division which has since merged with Convair.

He was on the staff of the Corporate controller at General Dynamics headquarters in New York when he became a consultant to NASA in 1964.

Dynamics Man's Son Named to State Post

Darryl Owens, son of Vernon Owens of General Dynamics Corporate Headquarters in New York City, has been sworn in as Kentucky's first Negro Assistant Attorney General.

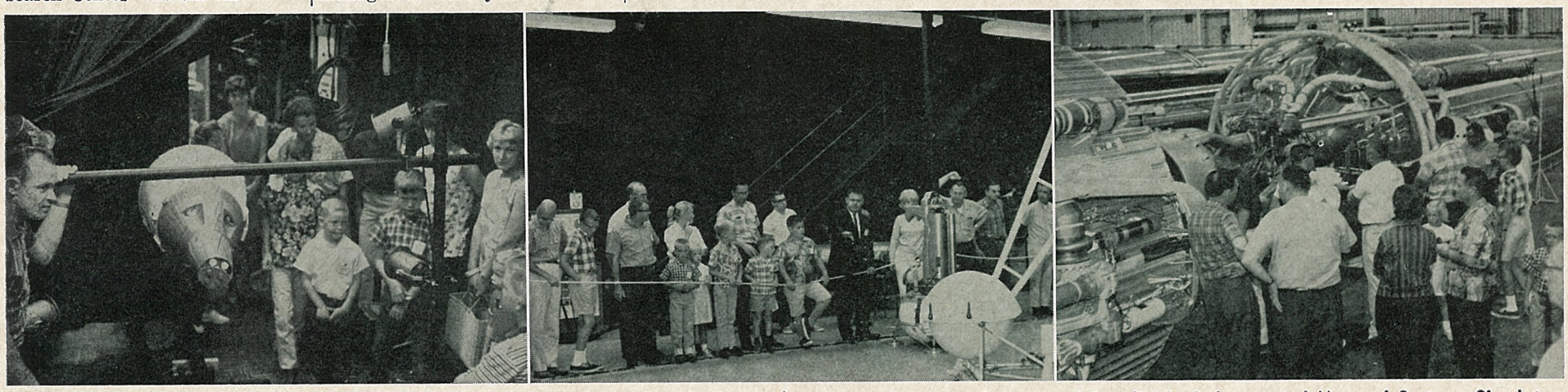
The new Kentucky official, 28, was admitted to the Kentucky Bar in 1962 after graduation from Howard University School of Law, Washington, D. C., and has been in private practice in Louisville. He is a captain in the Army Reserve.



BACK "HOME" — Star III, two-man research submarine built and operated by Electric Boat division, is back at Groton, Conn., after six weeks of research missions for U.S. Navy Underwater Sound Laboratory. Sub made dives off Atlantic Continental Shelf and off Bermuda. Eighteen of dives exceeded 1,000 ft.



CONFERENCE — A Corporate-level meeting of wage and salary directors was held at Fort Worth division recently. Among those attending, from left, back row: L. A. Lincoln, director of industrial relations, Material Service; G. S. Crystal, Corporate administrator of wage and salary programs; Claude Gareau, director of industrial relations, Canadair; and J. N. Remissong, manager of industrial relations, Quincy; Front row; Karl Goetter, manager of personnel and insurance, Liquid Carbonic; F. E. Chambers, director of industrial relations, Fort Worth; and Jim Budros, Corporate director of compensation and personnel development, chairman of the meeting.



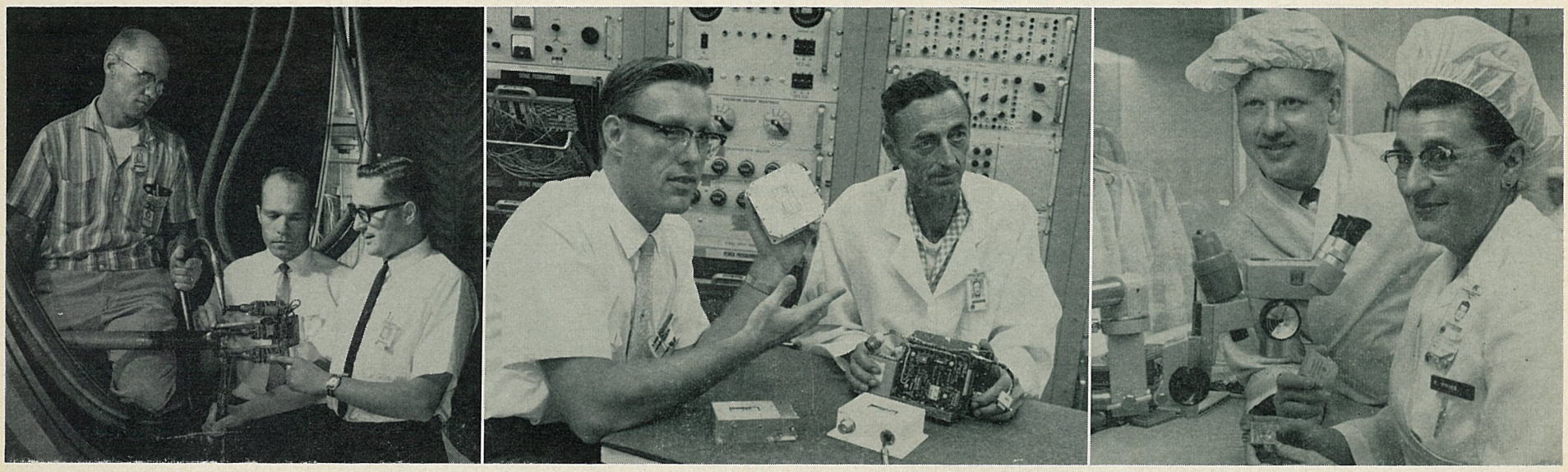
SPACE SYSTEMS GUESTS — Air Force Space Systems Division personnel and families recently visited Convair Kearny Mesa plant. In center, W. M. "Buster" Carlson, Convair life sciences administrative assistant, describes operation of division's giant six-degrees-of-freedom simulator and at left, Gary Cain, Convair community relations assistant, explains division's Integrated Manned Systems Simulator. At right one of tour groups is shown in Atlas SLV-3 final assembly area. In right foreground is Col. Leo W. Sullivan, SLV-3 program director for SSD. Visitors also enjoyed food and refreshments in CRA Missile Park.

Are We Giving  Our Fair Share?

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 19, No. 21 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, October 19, 1966



CENTAUR CHANGES—New flight equipment for Centaur use in AC-9 flight is shown at Convair Kearny Mesa plant. In left photo, new welded hydrogen peroxide engine cluster unit is placed in spacecraft test facility vacuum chamber by William J. Brunnhoelzl, an engineering test mechanic, as W. G. Michael, test facility coordinator, center, and James Rager, project leader for thrust units, looks on. In center photo, Loren Batchman, left, electronics engineer, displays new single-piece telemetry transmitter while Leo Strack, senior electronics development technician, shows old transmitter, filter and power supply being replaced. In photo at right, James Mildice, senior electronics engineer, and Ruth Rykhus, inspector, examine new overspeed sensor designed by Mildice.

Con-Trib Campaigns Aim at 'Fair Share'

Next week is "Con-Trib-Club Week" for Convair division, as well as Electronics and Stromberg-Carlson facilities at San Diego.

Employes not now giving their "fair share" through Con-Trib for support of health, welfare and youth organizations will be given an opportunity to sign for automatic contributions through payroll deduction.

Each employe's "fair share" is the equivalent of pay for four minutes work per day, or 8/10 of 1 per cent of salary.

A major portion of funds pledged through each of the Con-Trib clubs will go to United Community Services of San Diego County to support more than 75 community agencies.

Included are Mercy-Guadalupe Clinic, San Diego County Association for Retarded Children, American National Red Cross, San Diego County Epilepsy Society, San Diego Speech and Hearing Center, United Cerebral Palsy of San Diego, and Visiting Nurse Association of San Diego County.

Also, the Boys' and Girls' Aid Society, Salvation Army, Family Service Association, Childrens' Home Society, Boy Scouts, Girl Scouts, Boys Clubs, Camp Fire Girls, Neighborhood House and YMCA and YWCA.

Last year Convair Employes' Con-Trib-Club gave $245,750 to United Community Services and allocated an additional $126,978 to 75 other organizations.

Included was $10,000 to the American Cancer Society, $12,000 to the San Diego County Heart Association, $6,500 to Edgemoor Geriatric Hospital, $5,000 to the Home of Guiding Hands, $5,000 to Crippled Children's Society, $3,334 to Junior Achievement of San Diego, $3,000 to the March of Dimes, $2,000 to the Mental Health Association, $2,000 to the Muscular Dystrophy Association, $2,800 to the Sheltered Workshops of San Diego, $1,650 to the Volunteers of America, $2,500 to the Cerebral Palsy Foundation and $2,000 to the Citizens' Scholarship Foundation.

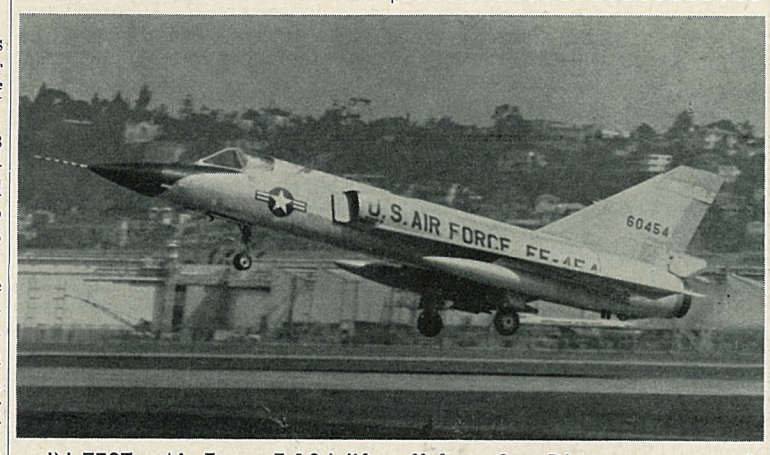
United Funds and agencies serving communities in which Convair employes live and work in the Vandenberg AFB, Cape

(Continued on Page 4)

Contract on Redeye Engineering Awarded

Pomona division has been awarded a $3,933,182 contract by the U. S. Army Missile Command for 1967 Redeye weapons systems engineering services in support of Redeye production.

The Redeye weapon system is managed by the U. S. Army Missile Command, Redstone Arsenal, Ala. The shoulder-fired weapon is being produced at Pomona for the Army and Marine Corps.



IN TEST—Air Force F-106 lifts off from San Diego runway early this month for first in-flight test of air-to-air refueling installation designed and built by Convair under contract from SAAMA. Air Force pilots are testing craft; Convair is providing ground support.

'Right the First Time' Movie Will Be Shown Next Week

Convair employes in the San Diego area will have an opportunity to see the Department of Defense film "Right the First Time" in 45 showings next week at Kearny Mesa, Lindbergh Field and Air Force Plant 19.

"This excellent film presents a story that will enable each employe to better understand the goals of our expanded 'Do Good Work' program," Jack L. Bowers, Convair division general manager, said. "This program of continued upgrading of 'Convair Craftsmanship' means increased product quality."

Following is the schedule for each of the 45-minute showings:

KEARNY MESA

Third shift — Bldg. 17, Room 2, 6 a.m. Wednesday and Thursday.

Second shift — cafeteria, 5:15 p.m. Monday and Tuesday.

First shift—cafeteria, employes with last names beginning with A through Be, 9 a.m. Monday; Bf-

(Continued on Page 4)

Centaur Readied For 'Park' Orbit

Centaur 8D has been outfitted with new equipment for use in its research and development flight next week from Complex 36B at Cape Kennedy.

Atlas 174D will boost the Centaur into space in the Atlas-Centaur 9 flight — the eighth and last research and development flight for Centaur.

Deane Davis, Centaur program manager, said demonstration of Centaur's capability to restart its engines after a "parking orbit" coast in space will be major objective. If the flight is successful, Centaur will be declared fully operational by NASA for "two-burn" missions. It is now operational for direct ascent (one-burn) missions only.

Gerald W. Lucas is AC-9 project engineer and Daniel Sarakon will be launch conductor.

Equipment being flown aboard Centaur for the first time will include a new attitude control system including redesigned 3-lb. engines for propellant settling and 3½ and 6-lb. cluster engines for control of roll, pitch and yaw; new continuous-duty vent valves; a new telepak telemetry data transmitter; a new static inverter for the electrical system and a new overspeed sensor to control speed of the turbine that drives hydrogen and oxygen boost pumps.

A "Christmas tree" decked out with 32 liquid vapor sensors and 15 temperature pickups for telemetry data also will be flown inside the tank to give engineers a look at propellant action during the in-space coast.

After its second engine "burn," Centaur 8D will release a mass model representative of the Surveyor spacecraft for a coast toward an imaginary "paper moon" 240,000 miles from earth.

Lucas said the Centaur's attitude control system engines have been redesigned for greater reliability and to eliminate a possible cause of engine malfunction and early hydrogen peroxide fuel depletion that occurred with the engines used on the AC-8 flight in April.

James Rager, senior design engineer in Dept. 962-2, responsible for the engines, said each chamber of the new three-engine clusters has been test fired 9,000

(Continued on Page 2)

KM Engineers Vote Totaled

National Labor Relations Board officials have confirmed results of the Sept. 23 election in which Kearny Mesa professional engineers at Convair voted against labor union representation.

A total of 1,652 professional engineers — approximately 95 per cent of the 1,740 eligible to vote — cast ballots in the election conducted by Barton Robertson of the NLRB at 12 polling places at Kearny Mesa, Air Force Plant 19, and the Point Loma and Sycamore test sites.

A majority voted "no union" by a count of 856 to 796.

Jack L. Bowers, Convair division general manager, said the large voter turnout indicated to him that the professional engineers recognized significance of the issue and understood both management and union points of view.

"With the election behind us, I believe we can move forward together toward our principal goal of solidifying Convair's position as an aerospace leader," he said.

M. V. Wisdom, director of industrial relations, said "We are extremely pleased that our professional engineers endorsed Convair division management's position and views."

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between Oct. 15 and Oct. 31.

Thirty-year: Dept. 031-0, A. V. Elo; Dept. 041-0, B. T. McMicken; Dept. 149-7, J. J. Swarts; Dept. 300-3, F. F. Stevens; Dept. 700-0, F. E. Grossher; Dept. 744-0, O. E. Mecham; Dept. 961-2, J. W. Hanna.

Twenty-five-year: Dept. 001-0, J. H. Hammer, K. Phillips; Dept. 019-0, S. Rivas; Dept. 059-3, H. J. Dwiere; Dept. 149-7, J. C. Williamson; Dept. 193-3, L. Baum; Dept. 195-0, A. L. Hendricks; Dept. 250-2, S. J. Earle; Dept. 300-3, W. H. Marshall; Dept. 400-2, C. W. Banks; Dept. 401-5, A. C. Hall; Dept. 401-6, H. Tieszen; Dept. 591-0, O. A. Sedwick; Dept. 834-1, D. Meredith.

Twenty-year: Dept. 002-0, E. C. Jankowski; Dept. 015-0, W. Ross; Dept. 059-3, M. F. Nicodemus; Dept. 127-0, L. A. Doore; Dept. 130-1, G. R. Kuester; Dept. 300-4, C. W. Derrick; Dept. 420-6, D. W. Beck; Dept. 451-0, M. Serniuk; Dept. 954-2, C. H. Meyer; Dept. 957-0, R. E. Torrence.

Fifteen-year: Dept. 019-0, P. F. George; Dept. 050-0, W. L. Van Horn; Dept. 053-4, M. M. Lawrence; Dept. 101-4, L. F. Anderson; Dept. 130-1, J. S. Carlin; Dept. 143-1, R. E. Culver; Dept. 170-9, D. B. Wentworth; Dept. 193-3, D. S. Vollmer; Dept. 194-0, B. J. Napier; Dept. 197-0, F. M. Wynkoop; Dept. 300-3, H. C. Flemming; Dept. 506-1, P. V. Smith; Dept. 511-1, F. J. Signorelli; Dept. 545-3, J. E. Northrop; Dept. 565-1, E. Kulas; Dept. 570-0, A. Hurlich; Dept. 572-3, W. J. Brask; Dept. 574-2, G. R. Mabie; Dept. 578-5, R. W. Bleeker; Dept. 780-1, R. D. Hill; Dept. 815-0, F. S. Brown Jr.; Dept. 816-3, A. W. Clark; Dept. 950-2, D. J. Mancuso; Dept. 953-2, R. C. Solomon; Dept. 954-1, P. M. Giard Jr.; Dept. 964-2, T. H. Buckley; Dept. 966-9, R. L. Batten; Dept. 988-7, R. P. Mikkelson.

Ten-year: Dept. 059-0, A. Medrano; Dept. 059-3, J. G. Ridley, A. L. Williams; Dept. 123-0, M. C. Chandler, S. M. Trepanier; Dept. 130-3, H. E. Miller; Dept. 130-9, R. R. Hindman; Dept. 143-0, V. A. Stillman; Dept. 143-3, P. E. Petiford; Dept. 146-5, A. C. Gormish III; Dept. 195-1, C. R. Stoker; Dept. 250-0, T. L. Fellner, W. E. Jones, R. E. King, T. W. Mears; Dept. 250-2, M. L. Goolsby; Dept. 250-4, B. M. Nash; Dept. 250-6, E. Bojorguez; Dept. 493-0, H. D. Hurdle.

Dept. 521-6, A. M. Prior; Dept. 533-2, J. H. Hurrle; Dept. 541-0, A. L. Ellsworth; Dept. 566-3, J. D. Blakeley, J. F. Jones; Dept. 590-0, H. Yoshihara; Dept. 780-1, W. C. Alther, I. L. Williams; Dept. 780-2, C. L. Richards; Dept. 780-3, M. E. Tucker; Dept. 832-2, R. J. Donaldson; Dept. 845-3, W. F. Pruett; Dept. 850-1, K. J. Inkel; Dept. 850-3, V. D. Jennewein; Dept. 950-3, G. S. Stringfellow; Dept. 950-7, D. E. Parsons.

Dept. 951-8, W. W. Johnston; Dept. 953-3, J. B. Boylan; Dept. 954-3, E. L. Hovde; Dept. 957-2, C. G. Douglass, F. J. Hogan; Dept. 958-7, W. H. Jaeger; Dept. 964-2, A. J. Dashnaw; Dept. 966-3, N. W. O'Rourke; Dept. 967-3, W. G. Ranscht; Dept. 974-4, S. U. Sutherlin, L. E. Willman; Dept. 979-1, N. Ritchie Jr.; Dept. 979-3, A. M. Palmares; Dept. 979-4, R. L. Goodwin; Dept. 985-1, H R. Pearson; Dept. 985-3, W. F. Bartosh; Dept. 987-0, J. F. Callahan, F. A. Horton; Dept. 988-5, W. H. Bradley.

STROMBERG-CARLSON

Ten-year: Dept. 8510, A. G. Davis.

Awards

CONVAIR

Employe Suggestion awards approved for the week ending Sept. 23.

Dept. 002, R. A. Davis; Dept. 016, L. L. Wood; Dept. 019, L. O. Smith (two awards); Dept. 101, R. E. Williams; Dept. 130, Norma C. Buell, Lois W. Tenwolde; Dept. 143, J. W. Pullis; Dept. 401, A. L. Simpson; Dept. 491, C. P. Rolla; Dept. 565, J. J. Wokuluk; Dept. 574, J. S. Jacobsen; Dept. 733, W. J. Mars, C. W. Maxfield (two awards); Dept. 744, M. A. Thomas; Dept. 758, B. T. Medearis; Dept. 780, B. C. Anthony; Dept. 835, C. D. Allenson Jr.; Dept. 845, D. E. Sundstrom; Dept. 967, J. S. Luster; Dept. 978, C. D. Fitzpatrick; Dept. 986, G. M. Huston; Dept. 987, P. E. Grasmick.

Employe Suggestion awards approved for the week ending Sept. 30.

Dept. 016, W. J. Gibson, B. M. Swanson; Dept. 031, L. E. Kopp, H. J. Liggett, E. M. Moore; Dept. 041, J. E. Ellis, A. P. Salazar; Dept. 130, B. J. Hicks; Dept. 141, J. L. Eiland, G. E. Stachwick, H. R. Van Hoose, W. W. Wilimek; Dept. 146, Ralph De Sola; Dept. 149, G. A. Gibbons; Dept. 574, C. L. Hagen; Dept. 758, G. F. Eggert, N. Montallegro; Dept. 759, G. D. Lundquist; Dept. 845, D. E. Sundstrom; Dept. 848, A. R. Brunner; Dept. 974, L. E. Willman, B. K. Williams; Dept. 985, A. H. Marquez.

Personals

CONVAIR

My wife and I would like to thank our many friends at Convair who were so thoughtful and generous during our recent sorrow of losing our son, Michael. Your comforting words will long be remembered by us. May God bless each of you.

Will Glunt,
Dept. 986-3

* * *

The bouquet and kind expression of sympathy from Convair employes will always be held in grateful remembrance.

Mrs. Jacob Zimmer and family

General Dynamics News

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Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

Invention Disclosures

CONVAIR

BARTLE—Ervin Roy, E. A. MECKSTROTH, and B. F. MYERS JR., Dept. 596-5. Commercial Ozone Generator.

BARTLE—E. R., P. R ERICKSON, E. A. MECKSTROTH, B. F. MYERS JR., Dept. 596-5. Laboratory Ozone Generator.

DEL CASALE — L. A. and B. BLUTINGER, Dept. 988-4. Signal Generator.

In-Plant Training

ORIENTATION

NEW EMPLOYES — Educational services staff, Lindbergh Field, ext. 491. Bldg. 14 auditorium, Tuesday, Nov. 1, 8 a.m.; Tuesday, Nov. 8, 4:30 p.m. Kearny Mesa, ext. 1931, Bldg. 17, Room 7, Monday, Oct. 24, 8 a.m.

PROFESSIONAL/TECHNICAL

SALES AND MARKETING FUNDAMENTALS — Monday, 1 to 4 p.m., Bldg. 17, Room 1, Kearny Mesa. Phone J. W. Magill, ext. 1931 KM, for reservations.

SPACE-AGE RELIABILITY — 9:10 to 10:10 a.m., Oct. 24-28, Oct. 31 - Nov. 4, Kearny Mesa, Bldg. 17, Room 8; 11:30 a.m. to 12:30 p.m., Oct. 24-28, Oct. 31 - Nov. 4, Lindbergh Field, Bldg. 14 auditorium. Phone Will Weidenfeller, ext. 1931 KM. Enrollment closed.

RELIABLE ELECTRICAL CONNECTIONS — Educational services staff. For further information and quota call ext. 1931, Kearny Mesa.

PROGRAMMED SELF-STUDY — A limited number of programmed texts in accounting, computer language, English, shorthand, electronics, electricity, instrumentation, management, mathematics, machine programming, statistics, and value engineering are available in the educational serves office, Bldg. 17, Kearny Mesa. These may be checked out for home study. Office hours are from 8 a.m. to 5 p.m., ext. 1931 KM.

Retirements

CONVAIR

BOYLE — Clarence F., Dept. 420-8. Seniority date July 15, 1940, retired Sept. 30.

BRANSON — Anna S., Dept. 129. Seniority date Nov. 14, 1950, retired July 31.

BRUNNER — Robert V., Dept. 733-0. Seniority date Oct. 25, 1940, retired Sept. 23.

CALVERT — Ray W., Dept. 731-0. Seniority date Sept. 18, 1939, retired Sept. 30.

CLATWORTHY — William G., Dept. 732-0. Seniority date Jan. 13, 1956, retired July 16.

COVEN — Pearl, Dept. 123-0. Seniority date March 26, 1952, retired Sept. 30.

De CONCINI — William G., Dept. 985-1. Seniority date June 7, 1946, retired Sept. 16.

DRISCOLL — Harold Q., Dept. 560-5. Seniority date March 12, 1951, retired Sept. 30.

KOTUN — Michael, Dept. 130-1. Seniority date Aug. 10, 1950, retired Sept. 30.

LEACH — Paul J., Dept. 643-0. Seniority date Feb. 24, 1959, retired Sept. 30.

MOBLEY — Alice D., Dept. 833-2. Seniority date Aug. 24, 1950, retired Sept. 30.

SULLIVAN — Dennis J., Dept. 563-0. Seniority date July 16, 1956, retired Sept. 30.

WRIGHT — Gerald S., Dept. 195-1. Seniority date May 20, 1943, retired Sept. 30.

Deaths

CONVAIR

GASSMAN—Norman M., Dept. 984-4. Killed Sept. 30 in C-119 crash while on duty with Air Force Reserve at March AFB. Survived by wife, Rae L.; son, Charles; two daughters, Alysia and Sharon; and mother, Mrs. Henrietta Gassman.

STEVENS — Merle L., Dept. 154-1. Died Aug. 31. Survivors include his wife, Frances; two sons, Jon and Jack, and a daughter, Elinor Wightman.

$4,300 in Con-Trib Funds Allocated

New officers for Convair Employes' Con-Trib-Club Committee for the next year have recently been installed.

James K. Field, chief of employe services, holds the appointive position of committee chairman. H. C. French was elected vice chairman, D. D. Strange was re-elected treasurer and Mary Martin was re-elected secretary.

The committee in meetings last month allocated $4,300 to four organizations.

Sheltered Workshops of San Diego, Inc., received $2,800 for purchase of a bus, the Brevard County Association for Retarded Children in Florida $1,000 for its building fund, the Santa Maria Servicemen's Center, Inc., $500 for operating expenses and National School District $50 for a sixth-grade camping program.

Electronics-SD Boosts Bond Buying

Electronics operations in San Diego has joined other GD divisions in achieving a substantial increase in U. S. Savings Bond purchases. Percentage of participation has been upped from 36.9 to 55.2.

George W. Leesch, manager of Electronics-SD industrial relations, reported that 154 new members signed during last month's bond drive.



ELECTRONICS CRAFTSMEN — First to receive new individual Craftsmanship Awards for work performance under Electronics' Zero Defects program at San Diego are, from left, Jack Valade, Charles Coley, Naomi Adams, Vicki Allen, Don C. Prim, operations manager (who made presentations), Fred Maus, and George Wolfe.

'Marketing' Subject For Mgt. Club Talk At Tonight's Meet

James M. Beveridge, well-known business consultant, will discuss "Aerospace Marketing," as main speaker at the Convair Management Club meeting tonight (Oct. 19) at Vacation Village on Mission Bay.

Beveridge is president of JM-Beveridge & Associates, consulting firm to major aerospace companies, principally in the area of market development. A former instructor at Cornell University, Beveridge has held responsible posts with Bell Telephone Laboratories and Hughes Aircraft Co., as well as an active duty assignment in U.S. Army Ordnance where he performed engineering liaison on the NIKE system.

Paul Allen, blind teen-aged member of a Junior Achievement group, also will speak.

Man of the Month plaques will be presented top cost reduction suggesters for the months of June, July, and August.

Social hour will start at 5:30 p.m. with dinner at 7 o'clock.

Electronics Singles Out Six For Outstanding ZD Efforts

Six men and women of Electronics operations at San Diego have been singled out for special recognition as the first to receive individual Craftsmanship Awards in the Zero Defects program for the high caliber of their work over the last six months.

Honored were George Wolfe of design engineering; Fred Maus, factory assembly; Jack Valade, spares procurement; Vicki Allen, accounting; Charles F. Coley, design draftsman; and Naomi Adams, travel reservationist.

Each was recommended by his supervisor on the basis of performance. Final decision was made by the Electronics operations' Zero Defects committee who investigated and evaluated all nominees.

Selection of recipients of the new Craftsmanship Award is based upon employes' overall participation in the Zero Defects program — implementation of the Zero Defects philosophy, personal achievement, error-free work, cooperation in all the company's aims and principles — in short, "work beyond the call of duty," Kent Sinclair, manager of quality control and ZD committee chairman, explained.

Wolfe, a design specialist in the advanced development laboratory, was chosen for designing a dual channel X-Band microwave frequency multiplier and filter for the Mistram transponder, previously believed to be impossible.

He went on to solve another difficult problem by conceiving a design which would increase the number of microwave filters within the same volume and did it in an extremely short time to prevent delays in the program.

Maus, who works in the modification and repair area of REINS production, was recommended for consistently meeting task completion dates, high-quality workmanship, excellent attendance, and his participation in the cost savings and Employe Suggestion program.

Valade's supervisor said that, in performance of the spare parts analyst's primary task involving determination of repair and spare parts, their documentation and procurement, he has demonstrated "the rare ability of maintaining high quality performance in preparation of the Replaceable Parts List under heavy pressure to maintain extremely tight schedules. He has not allowed himself to sacrifice quality for time."

Mrs. Allen, cashier at the San Diego facility, was lauded for her pleasant attitude together with her accuracy in the handling of funds passing through her hands.

"In the performance of her duties, Mrs. Allen is accurate, timely, pleasant, and still finds time to assist any of her fellow employes," read her commendation.

Coley of the mechanical design group was pointed up for consistently producing error-free drawings, maintenance of configuration control, and cooperative coordination with other groups.

Mrs. Adams was singled out for her relentless efforts to provide travel reservations during the recent airlines strike. To cope with the situation, she worked out schedules on her own time and outside of work hours.

"It is upon the efforts of people like these that the success of this operation depends," Don C. Prim, general manager, stressed at the luncheon honoring the award winners and their supervisors. The luncheon and presentation ceremony was held Sept. 30 at Kona Kai Club.

Each received a Craftsmanship Award certificate signed by Parker Painter Jr., general manager of Electronics division, and a pen and pencil set for each winner's personal use.

Similar awards will be made twice a year, Sinclair said. Names may be submitted to the committee by department supervisors at any time during the six-month period.

Group awards will continue to be made each quarter with the next presentation later this month.

Serving on the Zero Defects committee, in addition to Sinclair, are D. V. Hill of quality assurance; Joe Cook, design engineering; Jack Larson, accounting; Jack Skimmin, manufacturing; and Ernest Stelmar, estimating.

Centaur Readied at Cape For 'Park' Orbit in Space

(Continued from Page 1)

times and one of the 3-lb. propellant settling engines 3,900 times in a vacuum chamber at Kearny Mesa. The 3-lb. engine tests included five 25-minute continuous firings.

The new engines have their thrust chamber electron-beam welded to a heat barrier device for positive seal and elimination of a suspected "problem area" in an aluminum-nut seal previously used.

Vent valves for control of pressure in the liquid hydrogen and liquid oxygen tanks on the Centaur include a new solenoid controller designed by Roy Crawford, design engineer in Dept. 962-3. The valves are spring loaded and remain in "relief mode" except when power is applied to keep them closed. The old valves required separate commands for position change.

The new all-solid-state telepak transmitter weighs 21½ ounces, will be powered directly from the telemetry battery and eliminates auxiliary equipment weighing more than 4 lbs. previously required. The new transmitter is built by Conic Corp. to specifications prepared by Loren Batchman, electronics engineer in Dept. 963-9.

Kenneth Lejman, telemetry design electronic group engineer, said two of the old transmitter systems will still be flown on AC-9 while the new design is "proofed out" on the flight.

The new Centaur static inverter, redesigned by J. W. Schaelchlin, electrical group engineer in Dept. 988-6 and built by electronics manufacturing, converts 28-volt direct current to 115-volt, 400-cycle three-phase alternating current for guidance, autopilot and propellant utilization systems.

James Mildice, senior electronics engineer in Dept. 967-3, designed the improved overspeed sensor for the boost pump turbines that control feeding of liquid hydrogen and liquid oxygen from Centaur tanks into main engine pump inlets.

Sensors being produced by electronics manufacturing incorporate highly reliable electronic components and fully redundant circuitry and are of modular construction with welded leads. Alexander Avgerenos of Dept. 967-1 is coordinating manufacturing.

A Convair division "tiger team" was at the Cape last week with Lucas going over the AC-9 vehicles. R. I. Kreisler was team coordinator and R. B. Purcell was technical chief. Other team members and areas of responsibility:

Mechanical systems — J. B. Jarman, R. T. Fox Jr., H. L. Hahn, M. J. Debreceni and J. J. Bushnell.

Electrical systems — J. W. Schaelchlin, L. A. Del Casale, H. G. Yett, Bill Shiba and J. E. Frederick.

Flight control — R. A. Wilson, Leroy White, H. L. Newman and D. E. Quinn.

Structures and analytical — G. W. Norris, Samuel Merkowitz and G. C. Wilson.

Reliability and data — W. S. Hicks, R. H. Nicholson and C. A. Purdy.

Other support team members and areas of responsibility are W. F. Sauer, flight control; A. F. Leondis, structural dynamics and launch winds; J. A. Staley, ground winds; E. H. Christensen, thermodynamics; D. H. Lesney, trajectory analysis and J. H. Rusk Jr., reliability engineering.

S-C Nearly Doubles Bond Purchasers

Stromberg-Carlson Data Products almost doubled its participation in U. S. Savings Bond purchases through payroll deduction during the recent company-wide drive.

Total enrollment at S-C division in San Diego was increased from 34 per cent to 64, J. W. Swank, manager of industrial relations, said.

Australia Air Minister Finds F-111 Great to Fly

Australian Air Minister Peter Howson flew the F-111 variable-wing airplane at Fort Worth division recently and said, when he landed: "Everything good that I've been told about the F-111 is confirmed."

The minister for air for the Commonwealth of Australia made a flight of one hour and 15 minutes during a two-day visit to the Fort Worth plant.

Australia has ordered 24 of the aircraft from the U. S. Government. They will be used by the Royal Australian Air Force.

Referring to published reports critical of the F-111, Howson said: "I thought it rather good to see for myself just how wrong they are."

Asked for his reaction to experience in flying the airplane, the air minister said: "I couldn't believe how easy and how smooth it is to fly, especially compared to the aircraft I have been accustomed to flying.

"The flight controls are very light to the touch. You don't notice any change at all when you sweep the wings. But with the wings swept back—when the afterburner comes in—the acceleration is fantastic."

Flying with Howson was W. H. Harse, General Dynamics F-111 test pilot. The mission included routine use of the variable-sweep wing, fully extended for takeoff and fully swept during near-supersonic maneuvers.

Daylight Saving Time Will End

General Dynamics people, together with the rest of the country on Daylight Saving Time, will swing back to standard time the last Sunday of this month, Oct. 30.

Clocks will be turned back an hour to regain the time "lost" when Daylight Saving went into effect this spring.

Officially, standard time goes into effect at 2 a.m. the last Sunday in October.



GOOD SHOW—Australian Air Minister Peter Howson, left, was impressed with F-111 following flight at Fort Worth division. W. H. Harse flew with him.

Convair Engineer's Invention Gives 'Lift' to FW's F-111

Bruno W. Bracka, Convair division engineer, has given the Fort Worth division—and both versions of the F-111—a "lift."

While on assignment to Fort Worth in the early stages of the F-111 program, he devised a mechanism which gives the wing of the variable-wing fighter a higher relative lift than the original design.

The device makes possible the usage of a bipartite, high-lift aerodynamic slat in conjunction with the leading edge of the supersonic airfoil. It is used on both A and B model F-111s.

Bracka is also co-holder of another patent at Fort Worth division involving the F-111 program.

M. L. Hicks, division counsel, presented Bracka with Patent No. 3,272,458, Means for Positioning a Rotating Wing Slat Device.

J. E. Burgeson, Bracka's supervisor at Convair, accompanied the patent winner to Fort Worth in conjunction with the division's Producibility Program.

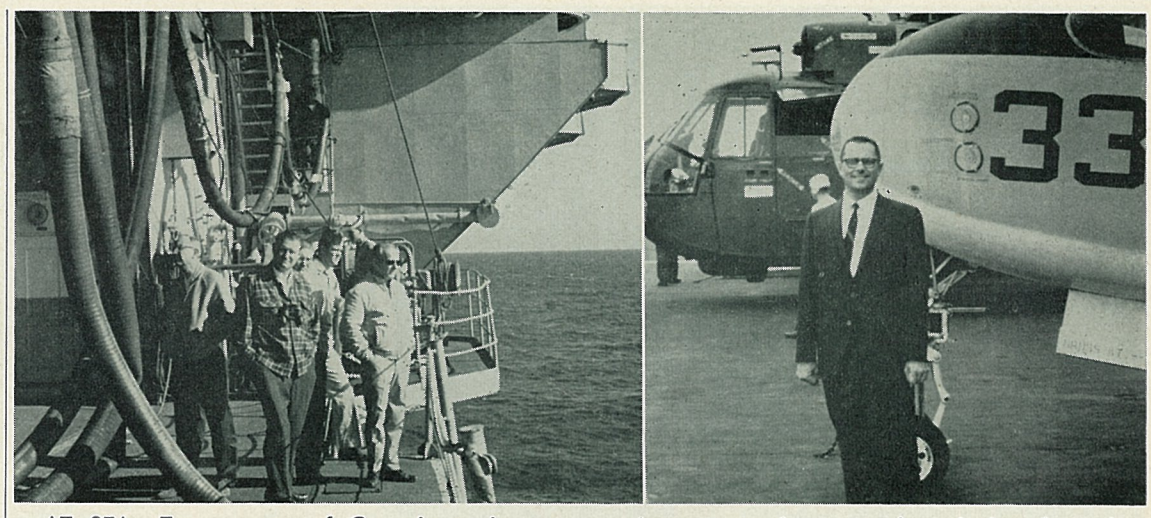
Simendinger New Capital PR Rep.

Kenneth T. Simendinger has joined the Corporate public relations staff in Washington, D.C., succeeding John Williams who has joined Continental Air Lines as public relations director.

Simendinger, a former assistant city editor of the Washington Daily News, previously was information manager for Data Processing Division of IBM in Washington.



ASSIST FROM CONVAIR—Bruno W. Bracka, Convair division engineer, receives patent for F-111 lift device from M. L. Hicks, FW division counsel. Bracka invented mechanism while on assignment at Fort Worth division.



AT SEA—Two groups of Convair engineers recently spent week at sea aboard aircraft carriers Hornet and Bennington, observing ASW operations. At right is Earl W. Boteler, Convair manager of advanced aircraft programs, aboard Bennington. At left is group aboard Hornet, including W. F. Woodson, Clark Kerr Jr., Ray Frindt, Richard Lingley.

Convair Advanced Aircraft Group Working on New Plane Project

Convair division is working on early phases of design of a new aircraft in anticipation of a requirement by the U. S. Navy for a plane to serve as a successor to currently operational carrier-based anti-submarine warfare (ASW) aircraft.

According to Earl W. Boteler, Convair manager of advanced aircraft programs, the work being done has two purposes: to acquaint Convair's "team" with Navy requirements in order to be responsive to the Navy's needs, and to prepare the division in every possible way for the time when the new aircraft, tentatively designated VSX, is more clearly defined and bid competition begins.

Boteler indicated that the preliminary concept includes a new "payload package" with integrated ASW sensors, computerized data processing equipment, and modern weapons.

Some plans for the crew working area, and allied integration of complex electronic equipment for the new plane, are already "off the drawing board" at Convair. A mock-up of this section is under construction.

Boteler said Convair is bringing together "a very strong team" for work on the VSX and similar aircraft programs for which the division will be competing in the next few years.

"Total systems" concepts similar to those developed in the nation's missile programs are being employed.

"This approach will contribute greatly to the effectiveness of any new military aircraft under development," Boteler said.

In addition to its improved overall effectiveness, the VSX is expected to have greater search area and attack capabilities than current ASW planes.

Engineers from Convair's advanced aircraft programs group recently conducted studies of ASW aircraft operating from aircraft carriers off the Pacific Coast.

Boteler was in charge of the most recent study group during a week aboard USS Bennington. Others were Sterling V. Starr, Robert R. Wahler, Duane D. Johnson, John A. Turner, Albert W. Morgan and Frank Machado Jr.

Rear Adm. E. P. Aurand briefed them on ASW tactics and problems.

Boteler said officers and men of the ship's company and Air Group 59 provided "invaluable assistance."

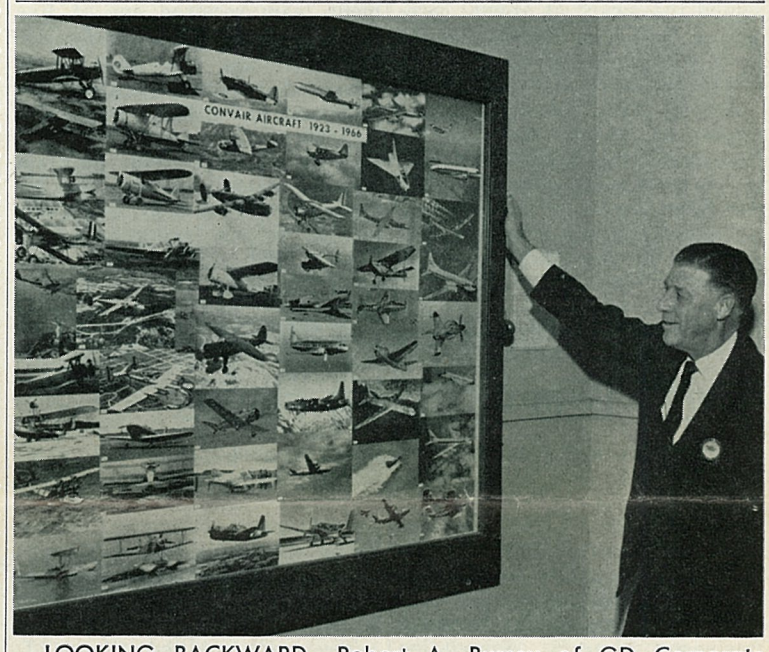
Nine other engineers from the group previously had spent a week observing similar operations aboard USS Hornet. They were Robert G. McGeary, Richard C. Lingley, Clark Kerr Jr., Stanley T. Piszkin, William A. Floyd, Wesley E. Woodson, Charles W. Chapman, Oliver F. Oldendorph and Raymond J. Frindt.

Boteler and Nick Van Dorn, VSX aircraft payload study manager, last month gave Navy officials in Washington, D.C., a progress report on the division's plans for "payload integration" in the new VSX design.

Similar presentations also have been delivered at the Naval Air Development Center in Johnsville, Pa., and for officers at the ASW school in San Diego and at North Island Naval Air Station.

M. J. Scott Will Head National Association

M. J. Scott, Fort Worth division administrator of suggestions, conservation and material handling, has been elected president of the National Association of Suggestions Systems. He will take office Jan. 1, 1967.



LOOKING BACKWARD—Robert A. Bussey of GD Corporate Headquarters inspects photo display of Convair aircraft dating from 1923 to 1966. As aircraft helper he worked on early day trainers 40 years ago, and has been with Company ever since.

Aircraft Helper

Corp. Insurance Mgr. Recalls 1926 Job That Shaped His Life

It was June, 1926, only a few weeks after his 17th birthday and a few days after completing his freshman year at Kenmore High, that Robert A. Bussey headed for a fledgling aircraft plant at Buffalo, N. Y., and applied for a job.

He got it. Aircraft helper at 35 cents an hour.

For Bussey, now Corporate insurance manager at New York Headquarters, it was the beginning of a 40-year association with what is now General Dynamics Corporation, uninterrupted except for completing high school (he worked summers) and continuing studies at Syracuse University.

The plant was Consolidated Aircraft which later became one of the major tap roots of General Dynamics.

"Those early years in Buffalo were fun. I helped put fabric on the wings of PT-1 trainers and later worked in assembly and jigs and tooling. It was invaluable, basic experience. However, my college major was accounting and when they needed a better timekeeping system I got the nod. I hired two timekeepers and became a supervisor!"

The closest Bussey got to "flight operations" was Thanksgiving night, 1929.

"One of the early Commodore flying boats we were building for the New York, Rio and Buenos Aires airline, was anchored in the Niagara River ready for a delivery flight. I got the job as watchman and slept on board, freezing in a sleeping bag!"

When Consolidated moved to San Diego in 1935 young Bussey went along, now firmly established in the accounting department. Over the years his experience included virtually every phase of this part of the business. Named Consolidated assistant treasurer in 1942, he became assistant secretary and treasurer in 1943 for the newly formed Consolidated Vultee Aircraft Corp. which was then a wartime giant.

"Those were days of rapid expansion—we had 13 divisions—and I was on the road a great deal, coordinating divisional financial affairs, hopping from point to point. I still have some shirts checked in Elizabeth City, N. C., that I never got time to retrieve!"

Postwar retrenchment brought somewhat less traveling, as divisions closed down, but the pace quickened when Convair became a part of expanding General Dynamics and in 1962 Bussey was transferred to New York, a move he took in stride, finding his assignment to Corporate insurance affairs challenging and stimulating "The scope was broadened considerably. Although well accustomed to aircraft and general insurance risks, the addition of marine and nuclear insurance was for awhile a bit more 'stimulating' than I had anticipated.

"However, it's absorbing, and come to think of it, I'm traveling as much as I did during the war. Maybe I'll get back to Elizabeth City to pick up those shirts . . ."



NASA HONOR—Grant L. Hansen, Convair vice president-launch vehicle programs, displays NASA Public Service Award presented for his "leadership and exceptional contributions" in Centaur program.

Convair's Grant Hansen Earns NASA Public Service Award

Grant L. Hansen, Convair division vice president-launch vehicle programs, has received NASA's Public Service Award for leadership and exceptional contributions to Convair's effort in developing and operating the Centaur vehicle system.

Dr. Robert C. Seamans Jr., NASA deputy administrator, presented the award at annual ceremonies Oct. 7 in Washington, D. C. It is NASA's highest award to a representative of industry.

Among those receiving Distinguished Service Awards was Gen. Bernard A. Schriever, USAF (ret.) former commander of the Air Force Systems Command.

Among officials receiving Exceptional Service Medals were R. D. "Duff" Ginter, Centaur project manager at NASA Headquarters; Edmund R. Jonash, manager, and J. Carry Nettles, deputy manager, of the Centaur Project Office at NASA's Lewis Research Center; and David S. Gabriel, first Centaur project manager at NASA-Lewis.

The Centaur project management team received one of five Group Achievement Awards.

Hansen has been working in missile and space programs since 1948 and joined Convair division in 1960 as chief design engineer. He was named Centaur program director in 1962 and has been responsible for all Convair division launch vehicle programs since Dec. 1, 1965.

Interest Aroused in Convair 600 During Demonstration Flights

General Dynamics' Convair 600 executive demonstrator has been ranging from New York to Ohio to Florida the last couple of weeks at the request of companies that want a closer look after seeing the up-graded Convair craft at the recent National Business Aircraft Association meeting in St. Louis, Mo.

"We had a great show of interest in the 600," P. F. Mouritz, manager of commercial sales, said, "and, from remarks made by those who took demonstration flights, all were really amazed at the improved performance of the Dart version."

Representatives and pilots of about 20 companies were taken aloft in four demonstration flights made during two days of the St. Louis meeting.

Heavy rains washed out the first day's schedule. The plane had already battled hail and snow to get to the Missouri city.

P. M. Prophett, director of aircraft sales and service, said that all the pilots who flew in the plane or handled the controls were impressed.

"They liked the ease of handling, the high rate of climb, and the short landing and takeoff capability.

"All said that they felt it would be an easy adjustment from piston Convair-Liners to the turboprop version."

Crew members were Howard Baird, Corporate pilot; Howard Auten, Convair engineering test pilot; R. T. LeVine, pilot; and R. M. Bloom, flight engineer.

The crew credited all-out efforts of Duncan Guest and R. J. Moore, Convair Service Center mechanics, with backing up the flights with ground support.

A Convair booth, showing a 600 film and literature, was manned by R. K. Hall of customer requirements. Mrs. Gary Cain spent most of the three days in the booth as hostess. Cain of Convair community relations coordinated arrangements for Convair participation.

Convair's contingent included W. L. Van Horn, Lindbergh Field operations plant manager, Prophett, Mouritz, L. J. Bordelon, manager of commercial customer requirements, J. D. Donaldson of aerodynamics, J. B. Hurt, Convair 600 program manager, and J. S. Boaz, contracts.

Since the September conference which drew some 2,800 delegates from 300 companies which own and fly their own transports, the Convair 600 has been demonstrated to executives of major companies in Washington, Pa., Columbus, Cleveland, and Youngstown, Ohio, Medford, N. J., and Fort Lauderdale, Fla.

A European demonstration tour of the Convair 640 converted by Scottish Aviation Ltd. at Prestwick, Scotland, gets under way next week. Over the next month or so it will contact prospective airline customers in Oslo, Helsinki, Copenhagen, Hamburg, Bonn, Amsterdam, Brussels, Paris, Zurich, Rome, Belgrade, and Beirut.

Crew will be Auten, pilot, Nate Murphy, co-pilot, Bloom, flight engineer, with Wesley Reusch, mechanic.

Prophett, Mouritz, Sandy McCord and Ted Laven will accompany the tour with the Corporate Paris office also providing assistance.

According to present company plans, another Convair-Liner 240 and a 440 will be converted for demonstration and sales use in early 1967.

San Diego Plants Fix Holiday Slate For Long Weekends

Thanksgiving and year-end holidays approved for Convair, Stromberg-Carlson, and Electronics divisions in San Diego will give employes three four-day weekends in the next couple of months.

All plants will observe Thanksgiving Day on Nov. 24 and have an extra holiday the following day, Friday, Nov. 25.

Christmas holidays, with extra days, will extend from Friday, Dec. 23, through Monday, Dec. 26. New Year's vacation period will be from Dec. 30 through Jan. 2.

Necessary maintenance and security personnel who will be required to work during the vacation periods will be notified by their supervisors.

'Right' Movie Will Be Shown

(Continued from Page 1)

Bz, 1:45 p.m. Monday; C, 2:45 p.m. Monday; D-E, 9 a.m. Tuesday; F-G, 1:45 p.m. Tuesday; H, 2:45 p.m. Tuesday; I-Ki, 9 a.m. Wednesday; Ki-L, 1:45 p.m. Wednesday; Ma-Mi, 2:45 p.m. Wednesday; Mj-O, 9 a.m. Thursday; P-Ri, 1:45 p.m. Thursday; Rj-Sh, 2:45 p.m. Thursday; Si-Sz, 9 a.m. Friday; T-V, 1:45 p.m. Friday, and W-Z, 2:45 p.m. Friday.

LINDBERGH FIELD

Third shift — Bldg. 14, 2nd floor auditorium, 6 a.m. Monday and Tuesday.

Second shift — Bldg. 14, 2nd floor auditorium, 5:15 p.m. Monday through Friday.

First shift—Personnel in Bldgs. 5, 51 and 69 — Bldg. 5, 2nd floor engineering auditorium; all other personnel — Bldg. 14, 2nd floor auditorium; A-Be, 8 a.m. Monday; Bf-Bz, 9 a.m. Monday; C, 10 a.m. Monday; D-E, 8 a.m. Tuesday; F-G, 9 a.m. Tuesday; H, 10 a.m. Tuesday; I-Ki, 8 a.m. Wednesday; Kj-L, 9 a.m. Wednesday; Ma-Mi, 10 a.m. Wednesday; Mj-O, 8 a.m. Thursday; P-Ri, 9 a.m. Thursday; Rj-Sh, 10 a.m. Thursday; Si-Sz, 8 a.m. Friday; T-V, 9 a.m. Friday, and W-Z, 10 a.m. Friday.

AIR FORCE PLANT 19

Third shift — cafeteria, 6 a.m. Monday.

Second shift — cafeteria, 5:15 p.m. Monday.

First shift — cafeteria, 9:15 a.m. and 10:15 a.m. Monday.

Supervisors for second and third shifts at Kearny Mesa and Lindbergh Field and first shift at Air Force Plant 19 will arrange attendance schedules for their personnel.

Eichberger, Thoman Get New Titles in S-C's Data Products

A realignment within the engineering department of Stromberg-Carlson Data Products in San Diego was announced last week by Charles R. Fisher, manager of engineering.

According to Fisher, the change from a functional to a program organization was made to increase Data Products' responsiveness to rapidly changing marketing conditions.

Engineering responsibilities have been divided into two general areas—commercial and government, with engineering product managers assigned to each.

Joe Eichberger is in charge of commercial programs as engineering product manager for microfilm recording equipment and desk-top computer inquiry stations.

Richard Thoman is engineering product manager for government custom systems with primary responsibility for A-NEW-type airborne ASW displays.

Advanced development function has been replaced by two sections —engineering research under Fred Hamann and Charactron tube engineering. Dan Haflinger is acting manager of Charactron tube engineering until a permanent appointment is made.

P. O. Wilson has been named manager of the engineering services organization to succeed Eichberger.

All report directly to Fisher, as does another new appointee on Fisher's staff, Elmo Turnage, who as senior staff scientist will be charged with responsibility for the division's patent matters.

Small Business Workshop Planned

V. O. Olson, Convair small business administrator, has announced that John Quimby, regional director of the Small Business Administration in San Diego, will offer a workshop for people planning to start businesses of their own. It is set for 1 to 5 p.m. Oct. 25 in the third floor auditorium of the San Diego Public Library.



MEMORIES — Maj. Gerald Winchell holds framed photo of first intercontinental missile ever flown by U.S. Air Force, an Atlas. Maj. Winchell conducted firing seven years ago, Sept. 9, 1959, from Vandenberg AFB, Calif. Picture was presented to him at Atlas Day dinner recently. From left: Jack L. Bowers, Convair general manager, Brig. Gen. William S. Rader, deputy commander, 1st Strategic Aerospace Division, Donald L. Fagan, Convair operations manager at Vandenberg, Col. Otto Haney, commander, 659th Test Wing. Dinner was arranged by Management Club.

Division Program Launched To Keep Employes Informed

E. C. "John" De Blanc Jr., a Convair division senior communications specialist, has been assigned new full-time duties in improving communications within the division.

In his new assignment, De Blanc reports to Ray T. Blair Jr., assistant to the general manager, and is assigned to community and public relations Dept. 100-1.



John De Blanc

Jack L. Bowers, Convair general manager, said the division and its organization and products have been changing so rapidly it has been difficult to effectively keep all employes informed.

"We are now entering a period of stability," he said. "We are going to take a good look at both old and new methods of information dissemination so we can more effectively inform all personnel of matters of significant interest."

Blair said De Blanc will spend the next few weeks studying means for better use of current communications techniques and developing a "total communications program" for implementation next year.

Blair said De Blanc will contact division staff members and supervisory personnel to discuss plans being developed for increased emphasis on in-plant communications.

He also will appreciate receiving written suggestions from any employe. Correspondence can be addressed to KM mail zone 100-10.

A native of San Diego and a graduate of San Diego State College with majors in history and English, De Blanc joined Convair in 1955 as an engineering aide, became a technical writer in 1957, a communications specialist in 1961 and a senior communications specialist in 1962.

Prior to assuming his new duties this month, De Blanc was in charge of the editorial group in Dept. 126-0 where he was responsible for preparation of sales and capability brochures, presentations, and proposals.

Vehicles To Be Sold To Highest Bidders

General Dynamics people have a chance to bid on three vehicles and a semi-tractor which will go to low bidders next week, Oct. 25.

Up for sale are a 1960 Chevrolet station wagon, 1964 Fairlane Ford sedan, 1961 Cadillac ambulance, and a 1957 International semi tractor.

All may be inspected at the Lindbergh Field plant salvage yard any day between 7:30 a.m. and 3:30 p.m. until sales day. Bids will be accepted up to 1:30 p.m. next Tuesday.

Bid forms are available at both Lindbergh Field and Kearny Mesa salvage yards.

SD Safety Engineers Place Third in Nation

San Diego Chapter of American Society of Safety Engineers has won its second consecutive award for excellence, placing third in the nation for outstanding educational and training programs in accident prevention and participation in community affairs.

The chapter is headed by Sam Rowland of General Atomic as president. Other GD members are B. G. Bonner, also General Atomic; J. W. Garrison, L. J. Breen, J. H. Cooper, R. P. Schulz, L. D. Simmons, and M. V. Clark of Convair.

Tie Tacks and Pins On Sale at Kearny

A variety of tie tacks and pins are on sale at the employe services office at Kearny Mesa.

A few Atlas tie tacks are available at 50 cents each. Several Project Mercury tie tacks, Mercury spacecraft tie pins, and AZUSA 500 tie tacks are on sale at 25 cents each.

Con-Trib Aims at 'Fair Share'

(Continued from Page 1)

Kennedy, Cleveland, Huntsville, Los Angeles and White Sands areas also received Con-Trib support in proportionate amounts.

Each of the Con-Trib-Clubs also assist in "taking care of our own" by setting aside and dispersing 10 per cent of funds as Emergency Aid for employes experiencing catastrophic emergencies beyond their control.

Convair division during the past year has given $42,393 in Emergency Aid funds to 119 employe families. A majority of the cases involved extensive medical care.

Each of the requests for Emergency Aid are investigated by a member of the Con-Trib committee.

THIS IS YOUR FAIR SHARE — 4 MINUTES A DAY

HOURLY EMPLOYEES (WEEKLY)		SALARIED EMPLOYEES (BI-WEEKLY)	
YOUR HOURLY RATE	FAIR SHARE	YOUR MONTHLY RATE	FAIR SHARE
$2.00	$0.64	$400	$1.48
2.35	0.75	500	1.84
2.60	0.83	600	2.22
2.85	0.91	700	2.59
3.10	0.99	800	2.96
3.35	1.07	900	3.33
3.60	1.15	1000	3.70
3.90	1.25	1100	4.06
4.25	1.36	1200	4.43

Way Back When

Atom Subs Christening at Quincy Recalls Early Day Shipbuilding

A proud era in Massachusetts shipbuilding was revived Oct. 14 when a pair of nuclear submarines, Whale and Sunfish, were christened at the Quincy (Mass.) division.

The era began shortly after the turn of the century and spanned 20 years. During that time 69 U.S. Navy submarines, plus 16 for other nations, were built in Quincy — more than were built anywhere else in the nation in the same period.

It all started because the company that built the U.S. Navy's first submarine didn't have a shipyard of its own.

That company was Electric Boat, now a division of General Dynamics with shipbuilding facilities at Groton, Conn. It was a small organization that designed undersea craft, subcontracted the construction and supervised the work.

It delivered Holland, the world's first practical submarine, to the Navy in 1900. Shortly after, contracts were received for additional submarines and Electric Boat subcontracted construction to yards on both coasts.

But most of the work went to the old Fore River Shipbuilding Co. at Quincy.

The first U.S. Navy submarine built in Massachusetts was the Cuttlefish, which was launched at the Fore River yard Sept. 1, 1906. She was 82 feet long and displaced 170 tons.

By comparison the attack submarines Whale and Sunfish are 292 feet long and displace 4,100 tons.

Shortly after the launching of Cuttlefish, 10 submarines were under construction at Quincy. On April 8, 1909, three were launched in one day.

Two of the three, Stingray and Tarpon, eventually reached what may be the height of coincidence. Besides being launched the same day, they were stricken from Navy records the same day 11 years later, then were sold for scrap on the same day.

In 1910 Salmon was launched at Quincy with Miss Rose Fitzgerald as sponsor. She later became Mrs. Joseph P. Kennedy and her husband was assistant general manager of the yard during World War I.

Many of the submarines built in Quincy were to distinguish themselves. For example, Skipjack, launched in 1911, became the first submarine to cross the Atlantic under its own power.

With the outbreak of World War I, submarine production increased and "O" "R" and "S" class submarines were built at Fore River. These venerable boats served the Navy for three decades and some saw action in World War II.

Many of the "R" boats were loaned to Britain and served throughout the war. The "S" class, known in the Navy as "Sugar Boats," bore the brunt of undersea warfare in the Southwest Pacific during the Japanese drive on Australia.

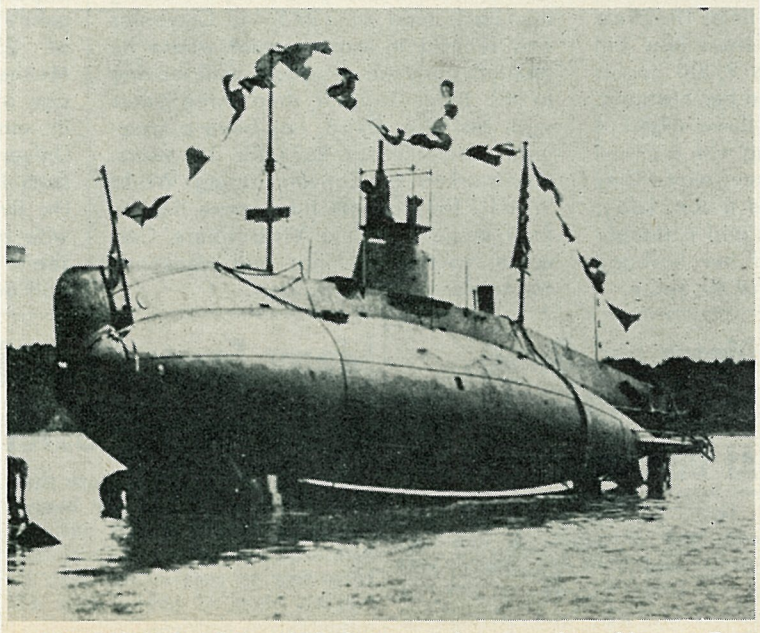
With the close of World War I, submarine building at Quincy came to an end, partly because of the trend toward disarmament, but largely because Electric Boat had established a diesel engine plant in Groton and was in the process of converting it to a shipyard.

By 1924 the Groton plant was, in fact, building four "R" class submarines for the Republic of Peru.

The close association between Quincy and Electric Boat was to remain dormant for nearly 40 years.

In 1964, General Dynamics acquired the Quincy Yard and operated it as part of the Electric Boat division until this year when Quincy achieved division status of its own.

The first keels to be laid at Quincy under Electric Boat aegis were the keels of the Whale and the Sunfish.



SIXTY YEARS AGO—USS Octopus, shown at launching at Fore River shipyard, Quincy, Oct. 4, 1906. Event was recalled by christening this month at Quincy of two nuclear submarines, Whale and Sunfish, at same yard, now owned by General Dynamics.

Texas Size Melon Divided by Painters

Painters in Convair division's Dept. 250-1 at lunch time recently shared what must be among the largest locally-produced watermelons of the year.

The 49-pound melon was grown by Charles J. Lewis Jr. in the sandy-loam garden soil at his home on Horizon Hills Drive, El Cajon.

A Convair employe for 20 years, Lewis attributes the size of his melons to the fact he started with seeds from De Leon, Texas, where he has seen a 62-pound melon and where townspeople claim an 80-pounder once grew.



BIG TREAT—C. J. Lewis Jr. of Convair Dept. 250-1 cuts into 49-pound watermelon grown at his home. Waiting to share treat, left to right, are Richard Russell, C. W. "Curly" Rigney, Ralph Bucy, Rubin Martinez (standing) and Royal Brown.

Contingent From Fort Worth Assists Radar Target Study

Fort Worth division engineers are helping the Air Force make electronic portraits of satellite shapes to develop a catalog of radar images of possible space vehicle shapes, the Air Force Systems Command has announced.

Electronic measures on some two dozen satellite models, ranging in size from four inches to nine feet long, will be made at the Radar Target Scatter (RATSCAT) installation at the Air Force Missile Development Center at Holloman AFB, N. M.

About 65 Fort Worth personnel, headed by Manager Bob Fate, are stationed at Holloman. The division is responsible for designing, building and installing the facility.

Aerosystems Laboratory is responsible for making the models, "whose dimensions, reflectivity and composition are carefully controlled in manufacture."

The models are basically cones and cylinders, modified with flaring ends or rounded noses. These relatively plain shapes will also be "perturbed" with the addition of fins, spikes representing antennas, and rods running the length of the body.

The electronic portraits will be taken in 2,000 hours of tests running through December at the RATSCAT national radar reflectivity measurement site near Holloman AFB. The models are suspended in front of a radar and mechanically rotated to simulate spinning, tumbling and other movements. In this way, a precise catalog of radar returns will be built up which can be applied to radar observation of objects orbiting the earth. The ultimate goal is a means of discovering as much information about an orbiting space vehicle as if the object were on the ground.

"In attempting to identify objects in space, which may be from 80 miles high up to hundreds of miles," explained Col. Thomas O. Wear, director of ESD's Space Track Program, "radar signals reflected from completely symmetrical objects are not too difficult to analyze. But irregularly shaped space vehicles which may be tumbling present difficult problems."

Gilliland Speaker On Failure Analysis

R. H. Gilliland, Convair reliability control manager for Lindbergh Field operations, was one of three speakers on a "customer satisfaction" program at the Oct. 6 meeting of San Diego Council of the Western Electronic Manufacturers Association at Kings Inn.

Gilliland talked on implementation of an effective failure analysis and corrective action system.



TEXAN-IZED—Claude Gareau, right, director of industrial relations at Canadair, was made honorary citizen of Lone Star State during recent visit. F. E. Chambers, Fort Worth director of industrial relations, made presentation.

1,000th Flight Of F-111 Logged

Highly successful weapons separation tests and high speed, low level runs, using the automatic terrain-following radar system, were made recently as the F-111 passed the 1,000th-flight mark.

F-111A No. 7 carried SUU-20A training pods on each inboard pylon in a high subsonic run over the Eglin AFB range. Each pod contained four 2.75-inch rockets and six 25-lb. bombs.

Rockets were fired 100 milliseconds apart, while the bombs were dropped in ripple fashion. Bob Moller, manager of flight test, said tests results were "excellent."

"This was one of the first in a series of tests to determine the separation characteristics of weapons from the variable-wing airplane," Moller said.

He added that simulated weapons had been dropped from the airplane's bomb bay in earlier runs at high subsonic speeds.

Pilots put F-111A No. 3's terrain-following system in automatic mode for on-the-deck, high subsonic (up to Mach .9) runs over an Oklahoma range. Results were highly satisfactory.

No. 3 will be ferried to Edwards soon, where the terrain-following system will be tested to design capability.

Another F-111A milestone of sorts was reached at Eglin AFB last month when airplane No. 10 emerged from 75 days of testing in the facility's cold weather laboratory.

Following tests, the airplane was assigned to Air Force personnel at Wright-Patterson AFB for further weather-climate testing under real conditions.

Maj. Herb Diercks, Air Force fighter test pilot, took the F-111 to Panama, C. Z., to test the airplane's reliability and performance in extremely humid weather. Then comes cold weather tests in Alaska, followed by hot weather tests in Arizona.

In other activity at Eglin, F-111A No. 5 is undergoing tests on the counter measures dispenser set, counter measures receiver set, and radar homing and warning systems.

At Fort Worth division, F-111A No. 2 continued propulsion tests.

F-111As No. 14 and 15 are at Fort Worth for various performance and propulsion demonstrations.

And F-111A No. 4 returned to Fort Worth recently, following a series of successful tests using new high lift devices. The plane will be re-configured to pre-SWIP design, then ferried back to Edwards for spin tests. Pilots will determine spin characteristics of the airplane and establish recovery techniques.

The first SWIP airplane, No. 12, continued high speed, low altitude flutter tests at Fort Worth.

F-111As No. 1 and 6 remained at Edwards AFB. No. 1 is undergoing flutter tests with weapons on its wings. No. 6 is running tests with various engine nozzle configurations and will be used later to determine drag caused by carrying various combinations of weapons.

The Air Force continues Category II testing of F-111As No. 8 and 9 at Edwards. No. 16 is slated to enter Category II following initial flights this month at Fort Worth.

F-111A No. 18 (the SAC prototype) and No. 11 (reconnaissance version) continue in work at Fort Worth.

First production F-111A No. 19, is scheduled to roll off the line in January.

Testing of the Navy F-111B continues at Grumman's Peconic facility on Long Island.

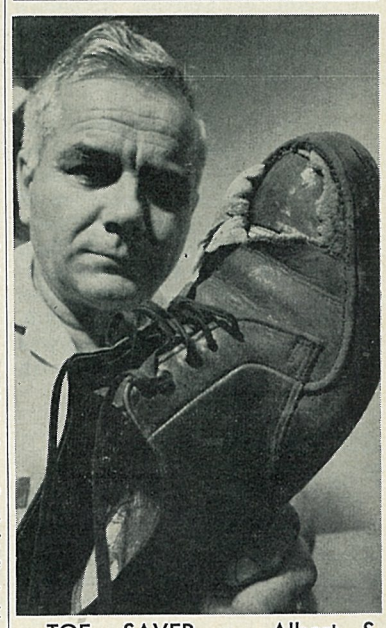
F-111B No. 1 is undergoing flutter tests with simulated Phoenix missiles aboard, while No. 3 has started testing with the Phoenix missile system at Hughes' facility in California.

Bowl Teams Enter Annual IRC Meet

Team entries are being accepted for the annual Industrial Recreation Council bowling tourney Nov. 5-6 at Pacific Recreation.

Five-man teams may be signed for men's, women's, or mixed divisions. Part of the $16 per team entry fee will be subsidized by CRA.

Entry forms are available at CRA Clubhouse, employe services outlets, or from Co-commissioners Forest Erwin, ext. 2884 KM; Jim Hayman, ext. 1360 LF; Mike Brooks, home phone 469-8793.



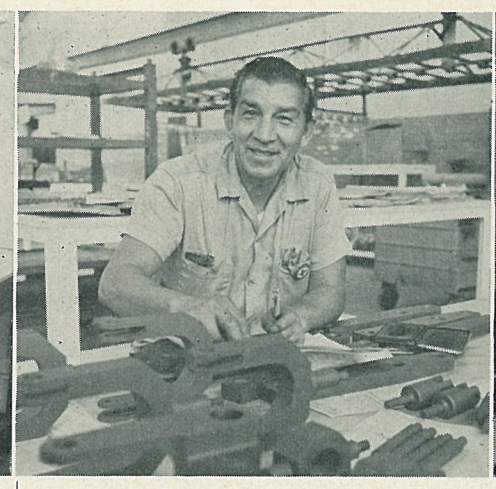
TOE SAVER — Albert S. Brown, Convair jig builder (Dept. 401-5), feels lucky to have all his toes after heavy sliding door rolled over foot, cutting safety shoe. Brown, who received life membership in Golden Shoe Club, said this was second time in three years safety shoes had saved him from serious injury.



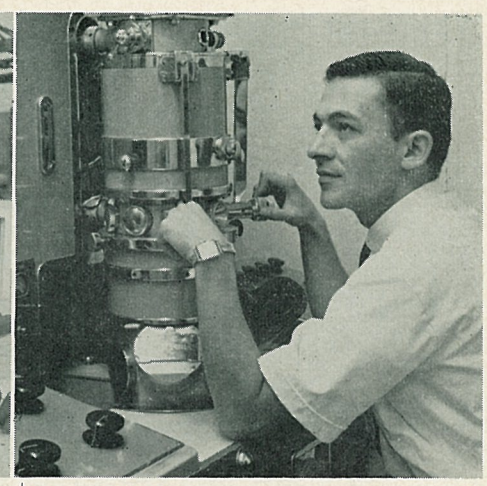
Sarah Willette, profile machinist in Convair Lindbergh Field plant's machine shop (Dept. 015) is one of the few women in the country operating profiling equipment. She's shown duplicating an attachment fitting for a C-141 vertical stabilizer on the Sundstrand profiler with a True-Trace attachment. She also operates the larger Arrow profiling machine which cuts large parts with varying degree angles. Sarah first joined Convair in 1941 as assembler in former Plant 2 subassembly after taking the training course in the Balboa Park school. She took time out to have four children before returning to work at Convair 14 years ago—in the machine shop. Since, she has worked in the Plant 19 machine shop and Lindbergh Field shop in Bldg. 1. She makes her home in Santee with her children, Gayle, 22; Donna, 18; Bruce, 15; and Victor,14.



Mrs. G. G. Sanders, an offset duplicator operator in graphic reproduction (Dept. 123-0) at Convair's Kearny Mesa plant, learned to operate offset printing presses on the job at Air Force Plant 19 when she joined the Company 11 years ago. She begins each work day by inking the press and ends it with press cleanup—but the printing jobs she runs during the day are highly varied. Although different color inks are used, black is used most of the time. The press speed is varied for different jobs but can turn out as many as 9,000 copies an hour. Mrs. Sanders and her husband, a baker, enjoy bowling three nights a week and are now bowling with a mixed foursome in winter league play. They live in El Cajon and have a son, Larry, in the Army in Viet Nam and a daughter, Kathy, 15. She and her husband served as foster parents for six years.



Daniel Cervantes, painter in Dept. 002 at Lindbergh Field plant, learned the trade as an auto painter at John Teal's Auburn Garage in Redlands, back in 1939. After working a while for Davies Motors in San Diego, he joined Convair in 1941, just two days after the Pearl Harbor attack. He had no trouble switching from cars to airplanes and painted PBYs and B-24s during the war years. After a year's layoff during the slack time of 1945-46, Cervantes was rehired in experimental where he painted parts for 17 years until moving to the Bldg. 1 paint shop three years ago. His wife, Elvira, has been a structural assembler at Rohr for 15 years. She worked at Convair during World War II. They devote their spare time to their home in Chula Vista where Cervantes spends evenings and weekends caring for his rose garden.



Art Mehner, an engineering metallurgist in the materials research group (Dept. 572-1) at Kearny Mesa, operates an electron microscope in looking at structures of materials in failure analysis studies. The 100,000-volt Hitachi electron microscope now being used produces up to 100,000-diameter magnification and its high resolution enables the group to do "pioneering work." The department obtained the microscope recently to replace a 50,000-volt model of 25,000 magnification capability. Mehner joined Convair division a year ago after receiving his master's degree in materials science at Northwestern University in Evanston, Ill., and his BA from Fenn College in Cleveland, Ohio. He lives in the College area with his wife of six months, Mary or "Tina" as she is better known, and enjoys playing golf during his spare time.

Convair Continues Work On Aircraft Safety

Convair division has received its third contract from the Federal Aviation Agency for studies under the FAA's overall program to improve the "crashworthiness" of commercial transports.

The recently-awarded contract, totaling just over $200,000, calls for design studies and a model structures test program to improve fuselage crashworthiness. Work will extend to late 1967.

Convair's previous studies in the field, under contracts received three years ago, included another on airplane structure, and one on fuel containment.

Overall purpose of the studies is, simply, to improve passengers' chances of survival in an aircraft crash, D. L. Greer, Convair project engineer for the current program, said.

The program will be divided into two phases. The first, which is to be concluded by April of 1967, will be devoted to evaluation of existing and new design concepts to determine methods of improving cabin integrity during crash impact landings.

"We are attempting to come up with a design for the safest fuselage possible, without adding significant weight to the craft," Greer said. "The fuselage should serve as a protective shell which can sustain severe local damage, yet maintain overall structural integrity and remain intact in a crash.

"We may find that a redistribution of fuselage bending material in existing structures, or better use of ductile materials will give us the results we're seeking."

Also, during the initial phase, simulated fuselage sections, or cylinders 100 inches long by 100 inches in diameter, will be tested at the structures test laboratory, Convair Harbor Drive Test Site, to prove out design concepts. Cylinders will be tested for energy absorption capability. The specimens will be dropped from a drop tower at weights up to 20,000 lbs. to buckle the specimens upon impact.

In the second phase of the program, promising design concepts will be evaluated by the FAA at its National Aviation Facilities Experimental Center, Atlantic City, N. J. Convair will build scale model fuselages, 20 feet long, which will be impacted at progressively increasing speeds to simulate airplanes making crash landings and skidding over a series of inclined slopes to see which fuselages will hold together and which will break up during the crash and its aftermath.

The contract was awarded by FAA's Installation and Material Service Procurement Service Branch, Washington, D. C., and will be supervised by NAFEC. J. J. Jaglowski Jr. is the FAA technical representative.

Plant in San Diego Opened 31 Years Ago

Tomorrow (Oct. 20) will be the 31st anniversary of opening of the plant of Convair division's predecessor firm, Consolidated Aircraft Co., in San Diego after a cross-country move from Buffalo, N.Y.

Convair has 50 employes who were with Consolidated when the local plant—now Convair's Lindbergh Field facility—opened with a public ceremony Oct. 20, 1935.

Oldest in service time is Earl H. Wesp of Dept. 401-9 who joined the company Jan. 7, 1925, and Lucille F. Metcalf of Dept. 149-0, who joined Feb. 10, 1925, and was one of six women to transfer with the firm from Buffalo.

GD Reservists Attend Navy Space Seminar

Six General Dynamics men, all members of Naval Air Systems Command Reserve training units, attended a four-day Aerospace Seminar in Colorado Springs, Colo., early this month on "Multi-Service Coordination in Space Defense."

Attending were Convair employes, Cdr. T. M. Wooster, Dept. 574-2; LCdr. F. G. Brickson, Dept. 543-5; and LCdr. J. E. Foster, Dept. 113. General Atomic men were Cdr. Anthony Navoy, LCdr. P. H. Sager, and Lt. N. B. Elsner.

Mgt. Club Offering Self Study Course

A self-study, correspondence-type course on "Practical English and the Command of Words" will be offered through Convair Management Club's education committee.

Boosters will have sample binders with preliminary materials about Nov. 1. Employes will have one month in which to register for materials.

Montague said the course has been made as interesting and stimulating as possible and is being given to "encourage general personal development."

Dinner and Games Package Offered At Discount Price

General Dynamics personnel can now purchase a Jai Alai games and dinner "package" with a $9 value for $5 at Convair, Electronics-SD, and Stromberg-Carlson employe service outlets, CRA Clubhouse, and the Bldg. 51 engineering mailroom at Lindbergh Field.

The "package" includes tickets for two margaritas per person, a complete carne asada or shrimp dinner with wine, dessert, and coffee, a choice reserved seat for the Jai Alai games, a copy of the games program and a copy of the Jai Alai players' sketchbook.

Jai Alai games are held Thursday through Sunday evenings at the Fronton Palacio, Tijuana.

Rifle Club Shooters Fire in Army Test

Thirteen Convair Rifle Club members fired early this month in the annual Army Director of Civilian Marksmanship qualification at CRA range, Gillespie Field.

Laura Farrelly fired 257 for expert rating and Fred Jacobsen, Dave Farrelly, Dick Zeich, Bob McGregor and Dick Greer each qualified as sharpshooters.

Qualifying as marksmen were J. H. Kersey, Bob Kastilahn, Martin Miller and Nickolaos S. Kourbelas. Also firing were Bill Polakowski, Jean McGregor and Mary Kourbelas.

Many From Convair Prominent In Technical, Science Societies

Convair division has more than 85 employes serving on boards and committees of 22 national technical and scientific societies, according to records of Dean H. McCoy, chief of engineering administrative services.

Names of the organizations and men serving are:

American Institute of Aeronautics and Astronautics — D. W. Purvis, R. F. Mawhinney Jr., A. B. Cox, W. F. Helmich, J. F. Haskins, C. J. Dunn, R. W. Lessard, Abraham Hurlich, E. W. Boteler, J. F. Brady, W. W. Withee, Bruce McKay, H. C. Dow, G. L. Hansen, D. H. Sowle, D. J. Peery, R. E. Martin and P. J. O'Leary.

American Electroplaters Society — E. W. Gross.

Aerospace Industries Association — H. E. Moose, R. H. Boggs, O. W. Harper, E. D. Shannon, S. Y. Johnson, J. W. Petre, T. T. Tanalski, R. T. Blair, R. W. Emerson, J. E. Frelinger, W. F. Brown, W. M. Warren, R. K. Ruhe and W. A. Pickens.

American Institute of Mining Engineers — M. D. Weisinger.

American Society of Lubrication Engineers — G. W. Oliver.

Instrument Society of America —H. N. Norton, D. J. Ferris and R. G. Roscoe.

National Academy of Sciences —Abraham Hurlich and E. E. Spier.

Simulation Councils Inc. — Stanley Rogers and R. L. Limes.

Society for Advancement of Management — G. L. Peyton.

Society of Automotive Engineers — D. R. Lukens, R. W. Casebolt, H. E. Wright, H. W. Callihan, G. L. Getline, C. T. Yang, A. R. Perl, Anthony Minella Jr., Bennett Weinbaum, Abraham Hurlich, R. L. Trussell, R. A. Nau, E. P. Aguilera, R. J. Elling and R. A. Westerwick.

Society of Aeronautical Weight Engineers — H. L. Jensen, D. O. Nevinger and J. E. Mullen.

National Security Industrial Association — J. W. Petre and R. K. Ruhe.

American Welding Society — J. W. Bradley.

American Society of Mechanical Engineers — Abraham Hurlich and C. T. Yang.

American Society for Quality Control — S. S. Smith, L. I. Medlock, R. W. Lessard, P. E. Gelles, C. A. Miller, H. H. Mischler, and L. I. Frederickson.

American Society of Testing and Materials — M. C. Miyaji, C. R. Smith, J. R. Kerr, Jules Hertz, J. L. Christian, W. E. Witzell.

Society of Experimental Stress Analysis — C. R. Smith.

Institute of Environmental Sciences — J. D. Peterson.

Society of Aerospace Materials and Process Engineers — Abraham Hurlich.

Institute of Electrical and Electronic Engineers — Eric Herz.

Space and Flight Equipment Association — R. J. Elling, R. R. Brazell and R. L. Wolf.

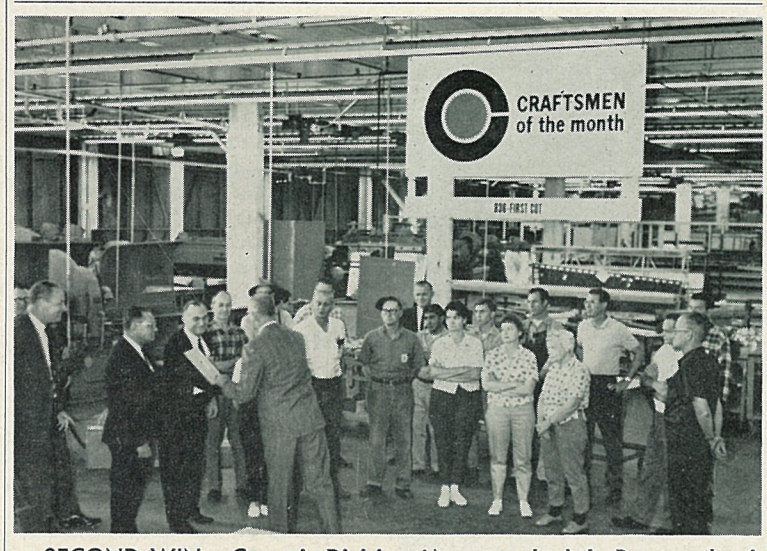
McCoy said the division encourages participation in the technical and professional societies and pays society dues and expenses to two annual meetings for employes who have been elected to regional or national offices. (See SPB-4)

Individuals also may be reimbursed for travel and expenses for attendance at professional meetings at which they speak or present papers and in some cases in which there is no direct participation.

"This adds to both individual and Company stature," McCoy said.

When an address is given or a paper published, a notation is made in the individual's personnel file and may be helpful as the file is reviewed when the individual is being considered for promotion.

A division budget provision makes it possible for an individual to spend 40 hours away from regular duties in preparing technical papers for presentation.



SECOND WIN—Convair Division Manager Jack L. Bowers, back to camera, congratulates Paul Franks, Dept. 836 assistant foreman, and his people in first-cut operations at Lindbergh Field plant for "phenomenal" improvement in work performance which won them August Craftsmen of Month honors. Dept. 836 topped Convair departments in March.

Splinter Sweep

Years of Study, Effort Pay Off As Dahlias Dominate Big Shows

Charles Splinter's years of painstaking cultivation of dahlias paid off in a big way this season when his prize blooms won "best of show" in every major Southern California show — a feat so far unequalled.

(The only show he didn't win was the annual Convair summer show! His entry took a first as best large bloom.)

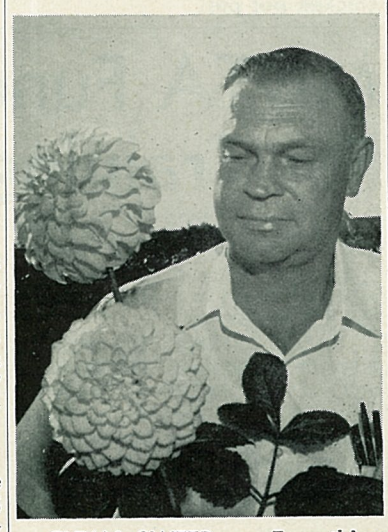
Splinter ticked off his top wins — best of show at the San Diego County Dahlia Show with a white "Sterling Silver," the Inglewood Dahlia Show with a white informal decorative "Windlassie," the Orange County Dahlia Show at Costa Mesa with a semi-cactus peach "Surprise," 12 inches across, the Southern California Dahlia Society Show at Long Beach with a red cactus variety, "Juanita." Altogether, he took home 12 trophies and eight medals and says the drawer of ribbons is so full he can't cram any more into it.

"Everything worked just right so that our blooms were at their peak at the different show dates this season," Splinter said. "The weather cooperated, too, so that our plans right from the time of planting culminated just as they should — in top blooms."

The Convair man (Dept. 987-0) said he was impressed by the first dahlias he ever saw some 15 years ago in a local flower show and decided right then that he wanted to raise them. Over the years they have become his full-time avocation. He spends every evening until dark working with the some 125 plants in the planting areas around his Lemon Grove home.

His wife, LaVonne, also a long-time employe at Convair, now as a secretary in the contracts department, helps all she can under his direction — debugging the plants and cutting the pompon buds. She has won many show prizes, too, with her arrangements.

The Splinters have belonged to CRA Garden Club for over 10 years and Splinter served as president of the former Astronautics group in 1963.



CLEAN SWEEP — Everything worked right for Charles Splinter this year and his dahlias topped all major Southern California shows.

Discounts Offered GD Folk On Variety of Coming Events

Discount and exchange tickets to coming performances and sports events in the San Diego area which are now available to all General Dynamics people at plant sales outlets through CRA arrangements include:

Chargers vs. Denver Broncos pro football game, Oct. 30, Balboa Stadium. Reduced-price tickets are $2.50 for $3.50 seats. Deadline for ticket purchase is next Thursday, Oct. 27.

Mantovani and his 45-piece orchestra, Nov. 6, Convention Hall, Civic Center. Choice orchestra seats, regularly $5, reduced to $4.50 for GD employes. Tickets must be purchased by Oct. 28. Discount coupons good for 50-cent reduction on any seat also available.

Royal Highland Fusiliers, Oct. 28, 8:30 p.m., Westgate Park. Tickets specially priced at from $1 to $4. Mail order forms at employe services.

Motion picture, "The Bible," at Capri Theater, Nov. 2, 8 p.m. Loge section reserved for GD families at reduced price of $2.50 a seat. Deadline for ticket purchase is Oct. 27.

Carlos Montoya performance at Civic Theater, Nov. 18 at 8:30 p.m. Exchange tickets good for 50-cent reduction at Civic Theater box office. Tickets sell from $2.50 to $5.50.

Old Globe Theatre 20 per cent discount coupons to be exchanged at box office at least 24 hours before performance time. Not good for Friday or Saturday evenings or sponsored performances.

Garbo Film Festival, Broadway Playhouse, Broadway at Eighth Ave. Exchange tickets good for $1 discount. Film series shown daily except Tuesdays for five weeks.

Ghost Town Slides Part of Program

An "Autumn in Gold Rush Country" program will be presented at the Adventurers meeting at 7:30 tonight (Oct. 19) in CRA auditorium.

M. M. Sugg, vice president of the San Diego Historical Shrine Corp., will show slides of ghost towns, old historical routes and Route 49 through the "mother lode country."

Adventurers plan a trip to the Sierras this weekend (Oct. 22 and 23) with Jim Moore as trip leader. The group will rendezvous at 7 a.m. Saturday at the Mt. Whitney Cafe in Lone Pine for a caravan trip to Bishop and South Lake.

Dick Bowen, commissioner, said the hike will be over a well defined trail.

TOASTMASTERS OFFER BEGINNERS CLAS

A beginners speech class will be offered by Convair Toastmasters Club 3745 at 4:15 p.m. Wednesdays Nov. 2 through Dec. 7 in CRA Clubhouse auditorium. The course will be open to all employes and enrollment fee is $4. Interested employes may register with Jim DeShazo, KM ext. 2056 or H. L. "Tiny" Jensen Jr., KM ext. 2681.

PLANT CHAMPIONSHIP GOLF CANCELED

CRA plant golf championships originally scheduled this month at Cottonwood Country Club have been canceled and are to be rescheduled next year.

"Ships and Sails" Theme of Displays

CRA Coineers will display their coin collections featuring "Ships and Sails" at tonight's (Oct. 19) meeting in the Convair cafeteria, Lindbergh Field plant, 7:30 p.m.

Everyone is urged to bring a display.

Door prizes will be two plastic coin holders for U. S. proof sets two velvet proof holders, and six vest pocket folding coin holders. To be given in the drawing will be a U. S. 1892P $10 gold piece, a U. S. 1903O silver dollar, five U. S. 1879O silver dollars, and five U. S. 1898O silver dollars.

Each member attending will get an uncirculated Panamanian centisimo. The usual auction will be held and refreshments served.

Riding Show Set For Oct. 30

Horsemen will vie in an approved open show sponsored by CRA Riding Club Oct. 30 at the CRA ring.

Equitation events will start at 8:30 a.m. and continue throughout the morning with gymkhana contests in the afternoon. Entry fee for equitation is $2 per individual for each class entered; fee for gymkhana events is $1 each.

A piece of silver service will go to first-place winners. Ribbons will be awarded adults through sixth place and children through tenth.

The show is sanctioned by the Horsemen's Executive Council, Southern California Gymkhana Association, and San Diego County Junior Horsemen.

A special attraction will be the performance of the trained Appaloosa stallion, Pat Hand, presented during the lunch recess by his owner, George Myers of Lomita, Calif.

Boyd Spencley, show manager, says that the ring is being worked over and should be in good shape by show day.

Three young riders of the Convair group won second place as judges' choice for their appearance in the annual Pow Wow Days Parade at Poway last month. Members of the drill team were Charlann Harmer, Terry Branscom, and Mickey Donahoo.

Mgt. Club Team Wins in Zone A

Convair Management Club bowling teams won top honors in the National Management Association Zone A bowling tournament the weekend of Oct. 8-9 at Clairemont Bowl.

First-place team honors went to the Astro Five, captained by Forest Erwin, with a 3,052 series. The team also held high scratch series, 2,884, and high team scratch game, 1,004.

This is the second year in a row and the third time that the Astro Five has topped the NMA tournament.

Big scorers on the team were Leo Robin with a 644 series and Tony Zullo who rolled a 245 game.

Other Convair teams finishing in the top five were the Last Minute Five, captained by Bill Easton, third place, 2,996 series; and the Astra-Jets, captained by Roy Demitrowicz, fifth, 2,932 series.

Thirty-three teams from Southern California competed in the tournament with Convair Management Club fielding seven entries.

Oct. 31 is Last Day To Sign For Tour

Deadline for signing for the guided tour to Tijuana on Saturday, Nov. 5, is Oct. 31.

The 12-hour afternoon and evening tour is sponsored by the Convair Management Club and conducted by Convair's Jim Hardison.

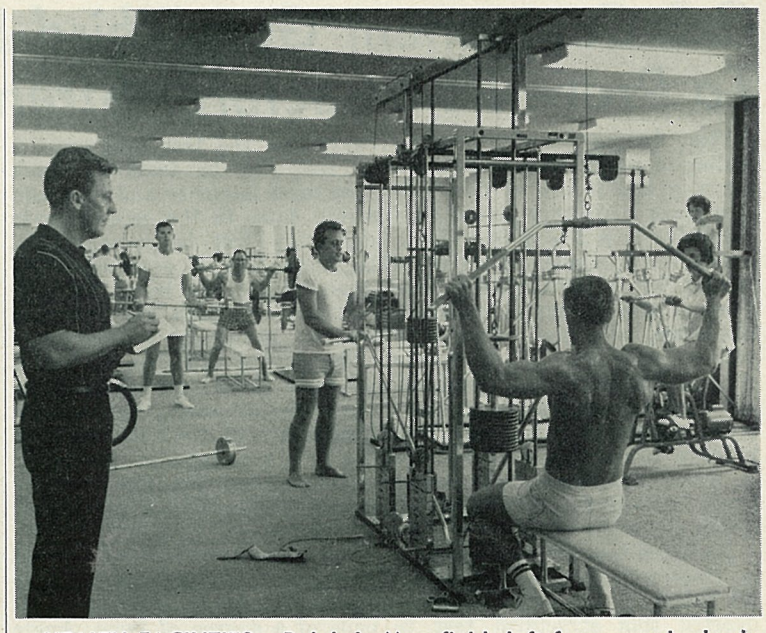
Departure is at 1 p.m. from the Bldg. 19 north parking lot with return around midnight. The tour of the border city will be made by chartered bus with stops at factories, cathedral, post office, and other spots of interest. Dinner will be at the Country Club followed by a visit to the jai alai games.

Cost is $11 for the entire trip, dinner, and admissions. Call Hardison at 276-5805.

Hoop Team Managers Will Meet Tomorrow

Plans are being made for CRA fast and slow-break basketball team play.

An organization meeting for team managers has been scheduled for 7 p.m. tomorrow (Oct. 20) in Room C at CRA Clubhouse. For information, call Pete Beyrer, KM ext. 1111.



HEALTH FACILITIES—Ralph L. Mansfield, left foreground, checks progress of General Dynamics employes using facilities at CRA Health Club where he is new manager. Full range of modern equipment and individual training programs are available.

Special Exercise Programs Available at Health Club

Ralph L. Mansfield, a veteran Convair division employe and former Navy physical training instructor, has been employed as new director of the CRA Health Club.

The club is one of the best equipped facilities of its kind in Southern California.

Vibrators, weights, dumbbells, barbells, press machines, exercycles and other machines of various types make it possible for employe family members using the club facilities to achieve better health, stamina, endurance and appearance.

Special exercise programs are tailored for the individual by the Health Club staff. Pat Lamoureux and Sondra Lindroth are women's instructors.

Sauna bath facilities for both men and women and a full-body-length sun lamp are available. Lockers and showers are provided for members.

The club is open for women only from 9:30 to 11:30 a.m. Monday through Friday and for all members from 11:30 a.m. to 10 p.m. weekdays and from 10 a.m. to 5 p.m. Saturdays.

Baby-sitting services are provided Tuesday and Thursday mornings at 50 cents per hour for up to two children per family. Youths between 12 and 15 years of age using the club facilities must be accompanied and supervised by an adult.

The club is now offering a six-month trial period membership at $12 for employes and $18 per family. Regular annual memberships are $18 for employes or $27 for employe families. Non-employes and their families also may join at higher rates and there is a $1 charge for guests for single visits.

Mansfield served as a Navy physical training instructor from 1948 to 1952 with assignments at Memphis, Tenn., Lakehurst, N.J., and the Naval Amphibious Base at Coronado.

He has been employed by Convair division the past 14 years as a template maker and plastic tooling mechanic except for a five-month period in 1958 when he served as an instructor at a health club in National City.

Richardson, Griggs Win Doubles Title

Dennis Richardson (Dept. 966-7) and Mike Griggs (Dept. 596-0) defeated Bart Strom and Dick Burden, 6-2, 6-3, to win the doubles intermediate title in the CRA invitational fall tennis tournament which wound up Oct. 8 and 9.

Altogether 30 teams competed in the doubles round-robin.

Eleven teams were entered in the advanced doubles division which was won by Dave Bennett and Dan McLaughlin. They won over Cecil Norwood (Dept. 967-4) and Dick Graham.

Lee Ann Strode, wife of C. D. Strode (Dept. 592-0) won women's singles honors by defeating Vicki Jensen.

Dunn, Waldron Top Ladies' Golf

Mabel Dunn and Maureen Waldron won Flights A and B trophies respectively, in GD women's golf Oct. 8 at Tecolote course.

Gift certificates went to other placers: Flight A—Ann Gagnon, Freda Magargal, Jo Ann Kranz, Mary Ransom; Flight B—Betty Jackson, Jean Hawthorne, Evelyn McFall, Barbara Bugbee.

Next tourney will be Nov. 12 at Mission Bay course, 8 a.m. For starting times call Mrs. Ransom, 278-1913, or Florence Kell, 466-3137.

Juniors Score In Rifle Meet

Seven members of Convair's Junior Rifleers fired against more than 120 competitors Oct. 1 in the Southern California Junior Rifle League's annual prone match in South El Monte.

Dave Farrelly Jr. won first marksmanship medal in the 60-shot English match and fifth marksmanship medal in grand aggregate. A team composed of Ken Moffat and Farrelly placed sixth in marksmanship for bronze medals.

Jim Tramposh and Jim Allen placed 25th in marksman class and the team of Bill Sutherland and Phil Glick seventh in master class. Ron Patterson was the seventh member competing.

Richard Ellis, 19, has replaced his father, Ivus Ellis, as assistant coach and instructor for the Rifleers gold squad. Club officials said work of the senior Ellis during the past three years has been a big factor in the Rifleers "phenomenal record" of tournament wins.

Master Point Night Held by Bridge Club

Mr. and Mrs. Mits Ishihara won East-West honors and Francys Darr and Eve Leasure teamed to take North-South at the Master Point night of Convair's Bridge Club Oct. 7.

Jack Stanger and Harmon Johnson were East-West winners in regular play Sept. 23. Mitzi Rustad and Tony Miller were North-South winners.

Members of the CRA group played in the Coronado and La Jolla Sectional at the Catamaran Hotel.

Delta Divers Visit Cardiff For Lobsters

Nineteen members of Delta Divers brought in 27 lobsters in the club's first lobster dive of the season Oct. 9 at Cardiff.

Rod Johnson's five small but legal "mini-bugs" made up the largest catch. Also placing were Cliff Kickbush, Larry Black and Clay Valstad.

C-5 Component Gets 'Third Degree' To Prove Its Structural Strength

First large-scale structural testing of a C-5 component is under way this month at Convair's structures laboratory at the Harbor Drive Test Site in San Diego.

The test specimen—a full-scale section of approximately one-third of the horizontal stabilizer box beam, including leading edge, of the C-5 empennage—went into the test fixture in the structures lab the first of this month for a series of static tests which will produce a maximum amount of information in a short period of time, Ed Schiff, structures lab group engineer, said.

Lockheed-Georgia Co., prime contractor on the Air Force cargo jet transport has specifically requested this structural test to optimize the craft's weight by every possible means during design stages.

"This test is intended to prove the structural integrity of the design to meet Lockheed requirements for minimum weight and maximum structural efficiency," R. W. Miller, C-5 program manager at Convair, said.

The series is divided into four types of tests, according to W. D. Bowers, research test engineer in charge of the test program.

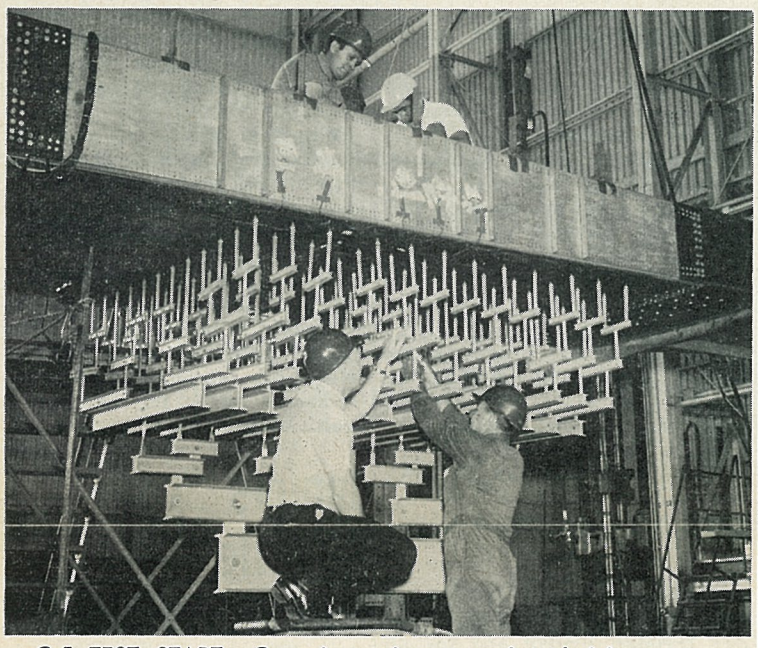
First will be tests to check structural integrity and to obtain strain data. In the second phase deflection will be measured at high accuracy to establish stiffness. Third will be a fail-safe test during which the structure will be purposely weakened by being cut. It will then be loaded up to a predetermined point to see if the structure, even though damaged, will meet the demanding requirements.

Fourth, and last, the structure will be repaired and then tested to failure.

An optical system will assist engineers to obtain high accuracy measurements to within 20 seconds of a degree of twist. Angle of twist can be determined by transit sightings reflected from mirrors mounted on the specimen and the crosshair markings magnified on a graph board 20 to 30 feet from the test section.

During bending tests 175 channels of information will be gathered through strain gages attached to the specimen. Data will be recorded by the structures lab's high-speed digital recording system and processed in the Kearny Mesa plant's digital computer laboratory. Results of the tests, to be concluded by the end of this month, will be submitted to Lockheed-Georgia, Marietta, Ga., for that company's evaluation.

Other C-5 test programs under way or scheduled over the next few months in the Convair structures lab include compression and shear testing of plate-stringer panels, two wing spar splice fatigue tests, fatigue testing of a horizontal stabilizer skin splice, dynamic and wear tests on the pivot bearing, empennage controls casting tests, and, sometime after the middle of next year, stiffness testing of a complete C-5 empennage.



C-5 TEST START—Convair engineers and technicians prepare large C-5 test section for first large-scale structural test in division's structures lab. On top, C. C. Woods, engineering technician, and Al Ramirez, instrumentation technician, hook up strain gages, while (below) Don Bowers, research test engineer, and A. E. Jones, mechanic, inspect whiffletree loading system.

Engineer Nominated For Tooling Award

Joseph E. Carlin, a Convair tool development engineer, has been nominated by San Diego chapter of the American Society of Tool and Manufacturing Engineers for the national ASTME annual "Progress Award."

The award is given to one individual for outstanding accomplishments in the field of manufacturing processes, methods or management.

Carlin has developed outstanding new methods of metal forming for Convair division including the Dynaflare tube flaring process, shotgun forming, 360-degree draw-form bending, hydrodynamic bulge forming, transition wave-die forming and controlled-energy-rate forming (CERF).

Electron Welding Paper Presented

H. I. McHenry, R. E. Key and J. C. Collins of Fort Worth division participated in the American Welding Society's recent national fall meeting in St. Louis.

McHenry presented a paper, "Electron Beam Welding of D6ac," as part of the session on welding for high-strength steels. Key and Collins, who helped prepare the paper, led the ensuing discussion.

Aerospace and chemical companies from throughout the country were represented at the meeting.

Star II Completes Dives to 1,200 ft.

The General Dynamics research submarine Star II has completed its test series with two dives in Atlantic waters to its maximum operating depth of 1,200 feet.

The two-man, 17-foot vehicle has returned to its home base at Electric Boat division to prepare for further operations.

During the series Star II achieved its maximum underwater speed of 4.5 knots and "surpassed most of our expectations" according to operators.

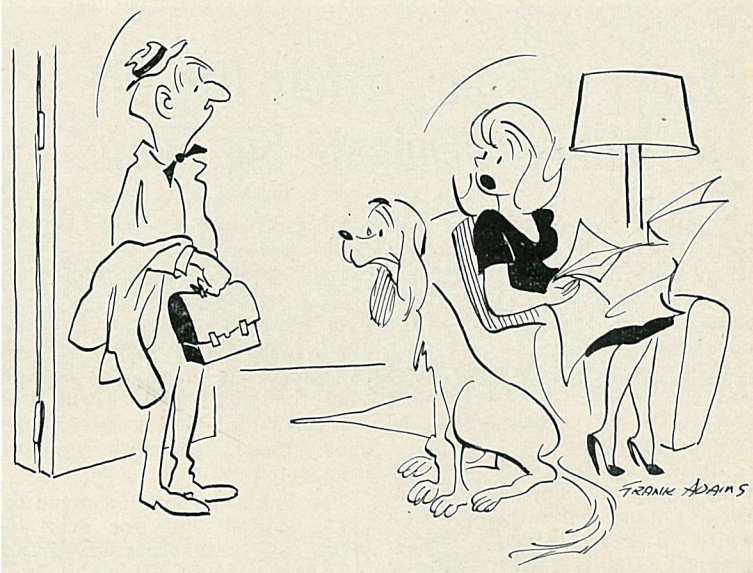
Barnes Joins Staff At Corporate Hdq.

Robert B. Barnes, who joined Convair in 1964 as an engineering planner, has transferred to Corporate Headquarters, E. H. Heinemann, vice president-engineering and program development, announced.

Barnes will assist K. E. Van Every on the engineering and program development staff. He received his BS in industrial management from Yale in 1962 and his master's from Harvard Business School in 1964.

'Transducer Shock' Subject For Paper

A. D. Carlson and R. J. McGrattan of Electric Boat division presented a paper, "Transducer Shock Study," at the 36th Symposium on Shock and Vibration at the International Hotel in Los Angeles, Calif.



"Of *course* it didn't taste like your mother's meatballs . . . It was chicken pot pie!"

MDTA Funds Granted For Training 650

A total of $604,933 in Manpower Development and Training Act funds has been granted Fort Worth division to provide training for 650 employes.

Of this number, 560 will be aircraft assemblers for structures and surfaces, and 90 will be sheet metal workers. Training will cover a 14-week period for each.

Congressman Jim Wright announced last week that Labor Secretary Willard Wirtz had approved the allocation.

The 14-week training course will include 10 weeks of classroom and workshop training at Technical Institute, followed by four weeks of on-the-job training at the plant.

All applications must be made through the Texas Employment Commission. Physical exams will be given at Fort Worth division before the trainee starts class work.

Subsistence will be provided trainees. The amount will be determined by individual needs.

Twenty persons will comprise each class. The first will start as soon as sufficient trainees are available. Thereafter, plans are to start a new class each week. Training under this allocation is expected to continue through next summer.

Overall supervision of the classes is under direction of the Bureau of Apprenticeship and Training. Jack Goodell is assistant regional director of BAT, while Mack Burke is field representative.

"Employes who know of individuals who might qualify for this program—or other training programs now being offered—are urged to have them contact Texas Employment Commission," said M. D. Myers, chief of employment.

AIA President Urges Industry Tackle Vast Social Problems

Karl G. Harr, Jr., president of the Aerospace Industries Association, explained to a group of banking and investment executives in Chicago recently that "if you want the 'desert to bloom' you will contract the job out and you will find a highly competitive response from private industry, particularly from the aerospace industry."

The decision must be made, he said, whether government or private industry is to cope with this nation's social needs and problems between now and the end of the century, such as solving urban congestion, inadequate housing, air and water pollution.

"The dialogue that suggests that technological advance constitutes a threat to social advance is hopelessly myopic," said Harr. "It could be such a threat, of course, if we failed utterly to adjust or apply it, and just let it run rampant." He added that "the only path to future well-being lies in controlling and exploiting such technology to our benefit."

The aerospace industry is increasingly aware of the nature of our future needs which he said is "not unnatural . . . because of its protracted immersion in the task of mastering and applying advanced technology to complex problems."

Reaction to F-111 'Very Favorable' Says Maj. Gen. Kinney After Flight

Maj. Gen. Andrew J. Kinney's reaction to his first F-111 flight was reportedly "very favorable—especially in the areas of acceleration and aircraft handling."

General Kinney, commander of the Air Proving Ground Center, flew F-111A No. 7 for 85 minutes from Eglin AFB, Florida.

He made the flight as part of a day's visit to the test site for orientation and briefing on the F-111 test program.

The visit was one of an extensive series being completed by General Kinney to review personally all Department of Defense research, development and training missions being performed at the 728-square-mile Air Proving Ground Center. Kinney assumed command of APGC Aug. 1.

General Kinney, an Air Force pilot for 26 years, was accompanied on the flight by E. E. Guthrie, Fort Worth test pilot at Eglin.

During his flight, General Kinney "piloted the aircraft through various altitudes at both subsonic and supersonic speeds, swept the variable wings, executed several 'hands off' let downs using the aircraft's terrain-following radar, and completed a touch-and-go landing."

F-102 Squadron Sets New World Record

The 525th Fighter-Interceptor Squadron based at Bitburg Air Base, Germany, has set a world record for consecutive days logged without an aircraft out of commission for lack of supplies. The 525th FIS, a USAFE squadron, is equipped with F-102s.

The squadron totaled 931 consecutive days without an aircraft down for lack of supplies to win the award. The previous record, 883 days, was held by a Japan-based F-102 squadron.

The award was presented by Gen. Bruce K. Holloway, former Air Force commander in Europe who is now Air Force Vice Chief of Staff.

People Mobility

Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

RICHARD G. JAEGER (1960) from Convair division to Quincy; **RICHARD M. GEISLER** (1959) from Corporate Headquarters to Stromberg-Carlson, Rochester as assistant controller; **ROBERT D. BOUCHARD** (1952) from Canadair to financial analyst, Stromberg-Carlson, Rochester; **ROBERT S. DURNELL** (1960) from Electronics, San Diego to systems engineering specialist, Convair; **C. G. OATMAN** (1950) from Electronics, San Diego to General Atomic; **MARSHALL D. BEAR** (1962) from Electronics, San Diego to senior electronic engineer, Convair; **CHARLES K. KEACH** (1960) from Electronics, San Diego to Convair as master scheduler; **DAVID C. CLARK** (1961) from Electronics, San Diego to senior electronic engineer, Convair; **STEPHEN L. SMITH** (1946) from Electronics, San Diego to Convair as program analyst; **ADOLPH R. PERL** (1946) from Convair to General Atomic.

Electronics at SD to Modify Tracking Equipment For Navy

Electronics operations at San Diego has begun preliminary work on modification of ship tracking radar equipment under an initial $3 million letter contract from the Navy.

The total contract for design, fabrication, and procurement of equipment will amount to around $7 or $8 million. Contracting agency is the Naval Air Systems Command, Washington, D. C.

The tracking equipment to be modified will be installed in the Vandenberg and the Arnold, ships used by the Air Force to track missiles launched from Cape Kennedy over the Eastern Test Range, and from Vandenberg AFB, Western Test Range.

Installation work will be done at a West Coast shipyard, not yet announced. Electronics-SD will be responsible for testing its equipment aboard the ships.

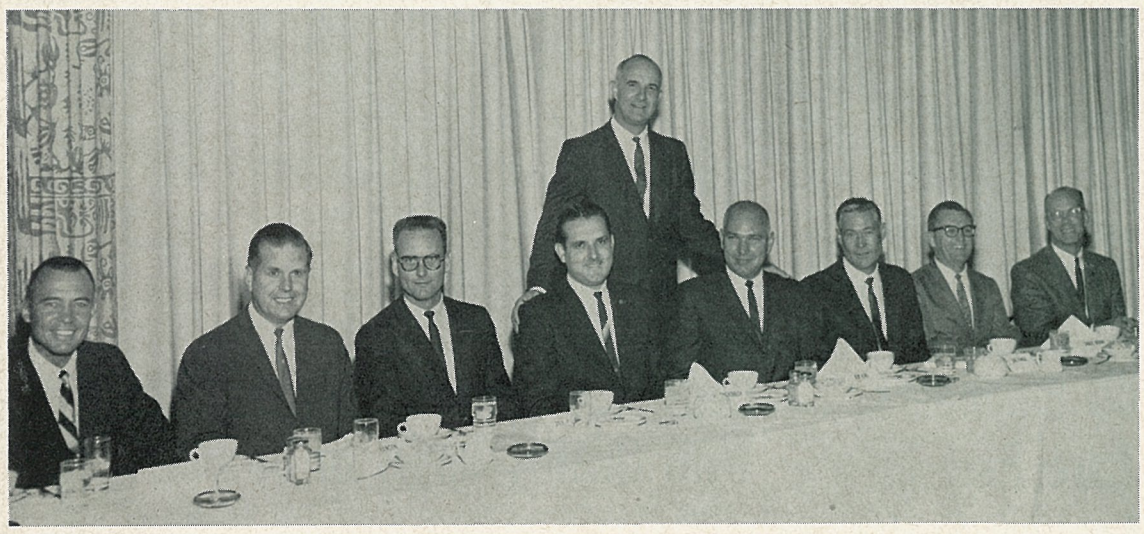
The Vandenberg will be finished near the end of 1967 while Arnold is scheduled for completion the latter half of 1968.

The program will be accomplished in Electronics-SD's platform systems laboratory under overall administration of Henry L. Copeland, chief engineer of the laboratory. Assigned full-time responsibility for the modification work is Calvin Burns, supervisor.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

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CLUB COMMENDATION—Jack L. Bowers, Convair general manager, poses with recipients of Management Club award plaques at club's October meeting. From left are C. S. Ames, G. L. Hansen, J. C. Cannady, W. J. Quackenbush, J. R. King and F. J. Parker, who received cost reduction awards, and Charles Bierman Jr. and Clarence Strand, who received "booster of the month" awards.

Six Honored For Effecting Big Savings

Convair Management Club at its Oct. 19 meeting at Vacation Village awarded plaques to six members for cost reduction and value control projects that will save the division more than $2¾ million a year.

C. S. Ames, vice president-military space programs, Grant L. Hansen, vice president-launch vehicle programs, and J. C. Cannady, launch vehicle programs manager of facilities, scheduling and administration, received the awards for integration of launch vehicle programs groups, tasks and facilities that will save an estimated $2,522,600.

W. J. Quackenbush, estimating supervisor in Dept. 195-6, and F. J. Parker, chief of shop order and work in process stores, Dept. 830-0, were honored for a value control project that improves electronic component rework estimating procedures and is expected to save $50,055.

J. R. King, assistant supervisor of electronics shop order, Dept. 832-2, received a plaque for a cost reduction proposal related to rework of electronic components for anticipated savings of $254,046.

"Booster of the Month" plaques were presented to Clarence S. Strand, foreman of experimental Dept. 031-0 at Lindbergh Field, for August and Charles Bierman Jr., design specialist in Dept. 966-0 at Kearny Mesa, for September.

James M. Beveridge, president of an industrial marketing consulting firm and guest speaker for the evening, combined antidotes and cartoon slides with professional advice in his presentation on "Marketing in the Aerospace Industry."

Beveridge listed six questions that he said can be used without exception in making rational decisions on whether to bid or not bid on aerospace contract proposals. They are:

1. Is there a real requirement?
2. Have you done your homework?
3. Is there significant prior customer contact?
4. Is your superior proposal only part of the total marketing effort?
5. Are you willing to give a totally dedicated effort?
6. Do you really believe you are a logical winner?

He stressed importance of "total commitment" in contract winning.

M. L. Sweeney, Management Club president, was master of ceremonies. Beveridge was introduced by C. W. Blakey, Convair contracts manager.

Centaur Operational For Two-Burn Tasks

NASA has declared Convair division's Centaur fully operational for two-burn missions following the highly successful Atlas-Centaur 9 flight Wednesday (Oct. 26) that marked the first successful restart of a large liquid hydrogen engine in space.

Grant L. Hansen, vice president-launch vehicle programs, said preliminary review of data indicated all aspects of the mission were completely successful and the simulated Surveyor spacecraft was released into its intended trajectory with very high accuracy following second burn of the Centaur engine.

"We are extremely pleased that Centaur is now fully operational for the national space program," he said.

Members of the General Dynamics Board of Directors and their wives watched the AC-9 launch from mission control at Cape Kennedy.

After the launch, board members visited the Complex 36B launch control center to commend the launch team and launch vehicles programs officials there for "a job well done."

Roger Lewis, president of General Dynamics, asked Deane Davis, Centaur program manager, to extend congratulations to all personnel involved.

Also present to watch the launch with the board were Jack L. Bowers, Convair division general manager; C. S. Ames, vice president-military space programs; and E. R. Peterson, vice president-research and engineering at Convair division.

Others from the Kearny Mesa plant with Davis at Complex 36B were Andrew Kalitinsky, assistant program director-launch vehicle programs engineering, and Gerald W. Lucas, AC-9 project engineer. Daniel Sarokon was launch conductor.

A launch support team of key engineering and manufacturing personnel gathered in the launch vehicle programs' chart room at Kearny Mesa at 1 a.m. to follow progress of the countdown and flight via a leased communications line and to answer questions that might arise.

The Atlas (174D) powered liftoff about 4:12 a.m. San Diego time. Tenseness turned to elation as the "textbook flight" progressed through successful second burn of the Centaur 8D's engine after a 24-minute "parking orbit" coast and accurate injec-

(Continued on Page 2)

Pre-Election 'Extras' To Be Handed Out

Copies of the League of Women Voters Election Extra will be available tomorrow (Nov. 3) at Kearny Mesa and Lindbergh Field employe services offices to aid Convair division employes in familiarizing themselves with issues in the Nov. 8 general election.

Candidates for Congressional offices in the 35th, 36th, and 37th districts have visited Convair facilities recently for informal talks with employes during lunch-hour periods.

Pacific Western Airlines Ltd. Buys Four Convair 640 Kits

Convair division has announced sale of four Convair 640 kits to Pacific Western Airlines Ltd. of Canada.

Purchase of the kits for updating Convair transports to the turboprop version with Rolls-Royce Dart engines was announced Oct. 20 by B. C. Samis, chairman of the Pacific Western board of directors.

J. B. Hurt, Convair 600 program manager, said that modification will be done at the Convair Service Center in San Diego. Three of the 60-passenger aircraft will be delivered in early 1967 and the fourth in 1968.

Pacific Western is the third largest Canadian airline, operating in the western area of Canada. Two of the Convair 640s will be put into West Coast service out of Vancouver, B.C., with connecting runs to Powell River, Campbell River, Comox, Port Hardy, and Hudson Hope. The additional two Convair 640s will operate out of Edmonton on the airline's easternmost routes.

Capt. Jack Miles, Pacific Western Airlines' vice president of operations, headed a quartet of airline officials on a visit to the Convair plant last week. Others were Tom McLaughlin, chief of inspection; Bernie Muller, superintendent of the passenger and service department, and Ted Toy, superintendent of communication.

This order brings total sales of 600/640 kits to 57. Twenty-five 600 kits have gone to Trans-Texas Airways and 11 planes have been modified at Convair Service Center for Central Airlines.

Net Sales Ahead Of Last Year

Net sales of General Dynamics Corporation for the nine months ended Sept. 30, 1966, totaled $1,259,333,000, compared to $1,058,145,000 for the first nine months of last year, Roger Lewis, president, announced last week.

Net income for the first nine months of 1966 was $36,816,000, or $3.51 per share of common stock after provision for preference dividends, Lewis said. Net income included $3,624,000, or 35 cents per common share, on the sale of marketable securities. Net income for the first nine months of 1965 was $31,207,000, or $2.78 per share after provision for preference dividends.

Net sales for the three months ending Sept. 30, 1966, were $450,240,000 against $352,475,000 for the comparable period of 1965. Net income for the third quarter of 1966 was $14,240,000, or $1.38 per common share, including 35 cents per share on the sale of marketable securities. For the third quarter last year, net income was $12,881,000 or $1.20 per common share.

Increased sales of the Corporation were due largely to the acceleration of production activities in the F-111 variable-wing fighter program, Lewis said.

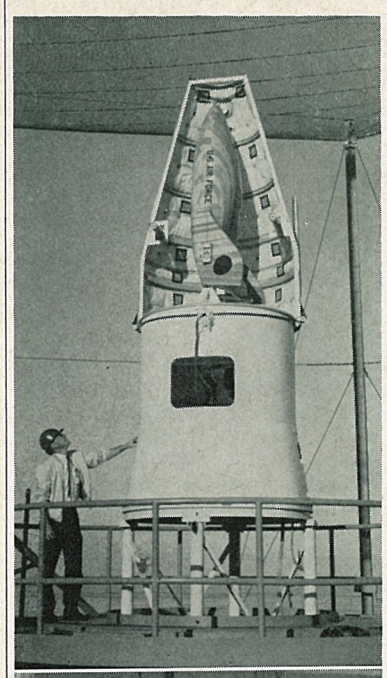
Seventeen F-111 development aircraft are in the current flight test program, including improved versions of both the Air Force F-111A and the Navy F-111B air superiority fighter, Lewis reported. More than 1,000 flights have been logged by these 17 aircraft through Oct. 20, including 99 flights at more than twice the speed of sound, he noted.

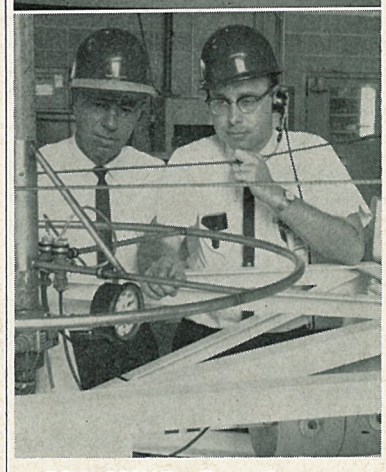
(Continued on Page 4)

Atlas SLV-3s to Boost AF Re-Entry Vehicles

Tests designed to identify and aid in resolving any problems with hardware to be used in future PRIME re-entry vehicle flights are nearing completion at Convair division's 37-acre Point Loma Test Site.

Four PRIME (Precision Recovery Including Maneuvering Entry) lifting-body vehicles are to be boosted into space by Atlas SLV-3s beginning late this year for re-entry flights down the Western Test Range.





FOR PRIME—Tests in support of Air Force's PRIME program are being conducted at Convair's Point Loma Test Site. At top, Norman Takvam, test conductor supervises matchmate test with full-scale wooden model of vehicle atop interstage adapter. Below are Fred Wallace Jr., test site operations chief, and Ronald Clarke, test conductor, examining mass model attached to air bearing "pendulum" test stand.

The program is being directed by the Air Force Space Systems Division. Atlas SLV-3 No. 7001, booster for the first PRIME flight, has been shipped to Vandenberg AFB and SLV-3 No. 7002 and its interstage adapter for use in the second flight are in final assembly at Kearny Mesa.

Match-mate tests completed at Point Loma provided a check of interfaces between the PRIME SV-5D vehicle built by Martin, its shroud manufactured by Douglas and its interstage adapter fabricated by Convair division. Procedures for mating the three also were worked out during the tests.

PRIME is an 890-pound V-shaped air foil spacecraft with a near-flat bottom surface and vertical tail fins. After completing its maneuvering down-range flight, each of the vehicles is to descend under parachute from 45,000 feet and be recovered in the air by C-130 aircraft or from the ocean by recovery ship.

Shroud jettison tests at L Tower at the Point demonstrated effectiveness of the explosive bolt and ejection system to move the two shroud halves away from the vehicle during the Atlas flight.

The shroud halves fell away into a nylon net about six feet above ground level in the tests while motion picture cameras recorded their action. The tests resulted in a recommendation that the electrical disconnect pull position be relocated and lanyards shortened for greater reliability.

In structural tests of the aluminum interstage adapter, hydraulic cylinders were used to create

(Continued on Page 2)

Pardee Appointed To Aviation Board

Donald R. Pardee, manager of management systems for Convair division, has been appointed by the San Diego County Board of Supervisors to a position on the board of directors of the Southern California Aviation Council, Inc.

He succeeds Harlan Torkelson of the University of California at San Diego, who has been elected president of the Council.

Pardee, a former Navy aviator, is a member of the local Flying Samaritans organization.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between Nov. 1 and Nov. 15.

Thirty-year: Dept. 031-0, W. J. Enlund; Dept. 041-0, B. U. Santi.

Twenty-five-year: Dept. 031-0, L. Hudson; Dept. 041-0, D. L. Cook, G. G. Elo III, A. Loya; Dept. 102-2, J. A. Lasater; Dept. 143-1, R. Miller; Dept. 143-4, H. A. Benner, E. E. Durbin; Dept. 300-3, E. E. Rinks; Dept. 400-1, R. B. Gattshall; Dept. 451-0, G. L. Ford, T. F. Suter; Dept. 460-0, C. W. Lockerm; Dept. 491-0, E. Catton Jr.; Dept. 566-3, J. H. Ruszat; Dept. 587-1, C. R. Smith; Dept. 832-2, J. H. Lewis, L. R. Nieder; Dept. 835-2, B. J. Yoakum; Dept. 957-0; J. E. Cook; Dept. 978-3, E. G. Blaauw.

Twenty-year: Dept. 001-0, M. S. Cole; Dept. 015-0, L. Carney Jr., G. L. Clayton; Dept. 016-0, E. O. Barnes; Dept. 041-0, C. D. Herrera; Dept. 115-0, C. S. Ames Jr.; Dept. 149-7, M. G. Torbett; Dept. 405-0, G. H. Greim; Dept. 835-4, F. S. Riley; Dept. 957-0, A. A. Ames; Dept. 974-4, S. Modica; Dept. 985-1, J. C. Ardoin, M. D. Bodger, P. R. Huitt.

Fifteen-year: Dept. 057-0, J. J. Laudenslager; Dept. 059-2, E. H. Robbins; Dept. 142-1, A. A. Lock; Dept. 144-2, J. N. Trail; Dept. 146-0, E. A. Calvin; Dept. 250-1, A. B. Jerke; Dept. 250-2, D. M. Skinner; Dept. 250-3, R. P. Elsner; Dept. 250-5, A. D. Garner; Dept. 507-0, V. M. Jorgensen; Dept. 511-1, R. M. Cash; Dept. 524-0, G. P. Puntar; Dept. 565-1, R. D. Reed; Dept. 583-1, K. S. Coward; Dept. 756-0, E. R. Perry; Dept. 780-3, V. M. Myers; Dept. 832-3 J. R. Luker; Dept. 966-4, R. J. Wilson; Dept. 957-0, J. Fodor Jr.; Dept. 972-0, D. L. Myers; Dept. 985-3, F. B. Servis; Dept. 988-7, B. L. Smith.

Ten-year: Dept. 005-0, B. L. Silvas; Dept. 015-0, C. P. Duckworth; Dept. 058-0, P. D. Weaver; Dept. 101-4, A. C. Justus; Dept. 124-0, B. A. Miller; Dept. 130-1, J. H. Beasley, W. A. Matt; Dept. 141-3, G. E. Duplissey; Dept. 142-1, W. C. Pauls, H. R. Simons; Dept. 144-2, E. T. Clarkson; Dept. 193-2, G. O. Perkins; Dept. 195-7, B. C. Edwards; Dept. 250-1, J. W. Borgerding; Dept. 250-2, A. J. Keen; Dept. 300-3, A. D. Manzano, A. Vigil; Dept. 420-5, P. J. Hooton, N. J. Pagliuca; Dept. 460-0, J. L. Locke; Dept. 521-6, E. N. Dunn; Dept. 543-3, M. A. Mayall; Dept. 551-2, H. C. Watton.

Dept. 584-2, R. E. Tatro; Dept. 586-0, E. F. Godenschwager; Dept. 588-1, D. M. Fielden; Dept. 592-0, J. H. Spencer Jr., R. L. Wolf; Dept. 595-0, D. H. Jirauch; Dept. 596-0, F. Oddo; Dept. 732-0, C. E. Larsen; Dept. 756-0, J. H. Akers, R. B. Hayes, R. W. Scott; Dept. 758-0, I. Jordan; Dept. 780-1, E. Brown, B. A. Burch; Dept. 780-2, W. C. Becker, M. C. Mulick, G. A. Rivers; Dept. 815-0, W. D. Mead; Dept. 818-2, H. M. Rinaldi; Dept. 832-3, C. E. Krausie; Dept. 833-2, E. M. Arnold, J. Taschner Jr.; Dept. 834-1, L. H. Nelson; Dept. 847-1, H. F. Warn; Dept. 850-3, N. H. Kern, T. S. Swenson.

Dept. 950-3, E. S. Penick Jr.; Dept. 952-5, C. Peters; Dept. 957-2, R. F. Kropidlowski; Dept. 961-7, M. A. Vasil; Dept. 962-3, R. C. Hagley, P. H. Kahelin; Dept. 963-4, C. J. Banks; Dept. 963-8, F. M. Bliss; Dept. 964-5, R. A. Thompson; Dept. 979-1, E. N. Coleman Jr.; Dept. 979-3, A. J. Traum; Dept. 979-4, L. E. Green; Dept. 985-1, J. M. Kirby; Dept. 988-8, E. P. Donovan.

Invention Disclosures

CONVAIR

KROPP—C. J., Dept. 572-1. Determination of Spot Weld Quality.

O'NEILL—R. F., Dept. 966-3. Evaporative Thermal Control Unit.

ROLLA—C. P. and J. M. KLINE, Dept. 491-0. "No Hands" Resistance Soldering Electrode.

Rider-Driver

CONVAIR

RIDE WANTED—From Lomita Village to Lindbergh Field plant. 7:30 or 8 a.m. to 4:30 p.m. Call Mary Ellis, ext. 571, LF, or 466-7912 after 5:30 p.m.

Personals

CONVAIR

We wish to extend our sincere thanks for the many prayers, cards, flowers, and memorial gifts sent to us during the illness and death of our beloved husband and father.

Mrs. R. Lee Sattro and family.

* * *

I wish to thank everyone for being so kind in your very special way during the bereavement and loss of my beloved son, Gary.

Ruth V. Wolfe
Dept. 524-2.

Deaths

CONVAIR

HORTON—Frederick A., Dept. 987. Died suddenly Oct. 18. Survived by his wife, Vivian.

TOMASCHESKI—J. F., Dept. 958-7. Died Oct. 20. Survived by his wife, Patricia Ann.

WITHEM — Paul H., Dept. 401-6. Died suddenly Oct. 16. Survivors include wife, Ann.

ELECTRONICS

EDINGER—Richard M., Dept. 6677. Died Oct. 23. Survivors include wife, Mary G.

VANDENBERG AFB

SWANSON—Marshall E., Dept. 576-7. Died Oct. 16 following extended illness. Survived by his wife, June Carol.

Awards

CONVAIR

Employe Suggestion awards approved for the week ending Oct. 7.

Dept. 002, J. P. Hood, L. D. Rush, M. Schriock; Dept. 005, J. W. Dickerson Jr.; Dept. 016, O. Anderson, M. V. Archibeque, L. Hunsaker; Dept. 019, D. R. Wilson; Dept. 041, A. R. Mettinger; Dept. 141, A. Aguirre, S. R. Locke; Dept. 250, B. O. Green; Dept. 420, J. B. Martinez Jr.; Dept. 454, M. Nash, B. J. Summit; Dept. 576, R. B. Pewsey.

Employe Suggestion awards approved for the week ending Oct. 14.

Dept. 015, S. S. Jenson, R. Moxley, H. A. Wilson, H. B. Wilson; Dept. 016, A. C. Abromowitz, M. L. Ervast, C. R. Mikula; Dept. 031, O. W. Bell; Dept. 041, R. W. Menzie; Dept. 110, J. Boaz; Dept. 130, J. H. Cooper; Dept. 131, J. J. Jackson; Dept. 141, R. W. Kinsman; Dept. 142, H. R. Phillips; Dept. 146, F. Piersall Jr.; Dept. 149, B. Hahn; Dept. 400, G. D. Rankin; Dept. 565, C. L. Johnson; Dept. 578, K. W. Swant; Dept. 733, S. Serrano, H. Staten Jr.; Dept. 780, L. M. Rapp; Dept. 781, R. J. Quick; Dept. 819, C. B. Ward; Dept. 834, B. Fortin; Dept. 845, S. P. Tessin; Dept. 848, J. Freeman; Dept. 957, J. A. Madden, C. N. Phillips; Dept. 972, D. L. Myers, H. L. Shaulis; Dept. 979, H. S. Maynard; Dept. 987, S. Contasti, J. W. Magnuson, F. J. Mathis, C. W. Neal, S. Robles Jr., J. M. Rodrigues; Dept. 988, W. J. De La Font Jr.

Papers Presented

CONVAIR

CUMMING — D. P., Dept. 507-0. "Development of a System for the Launch and Recovery of Large Instrumented Free-Flight Models in a High-Speed Wind Tunnel." AIAA/Aerodynamic Testing Conference, Los Angeles, Sept. 20-23.

MALKMUS — W., C. B. LUDWIG, C. C. FERRISO, Dept. 596-0. "Temperature Dependence of the Total Intensity of Difference Band Systems: The 10 Micron Band System of CO2." Ohio State/Molecular Spectroscopy Symposium, September.

NEWSOM — B. D. and J. F. BRADY, Dept. 592-0, "Orientation and Habituation in a Manned Revolving Space Station Simulator." XV Congressus Internationalis Medicinae Aviatical et Cosmical, Praga, CSSR, Sept. 26-Oct. 1.

ROSCISZEWSKI — J., Dept. 956-0. "Gas Dynamic Calculations of a Power Generator with Closed Circulation of a Fissionable Gas." AIAA/Intersociety Energy Conversion Engineering Conference, Los Angeles, Sept. 26-28.

Lost & Found

CONVAIR

LOST—Gold charm, "Merry Xmas." If found contact Carol Dickinson, Dept. 966-4, ext. 1681 KM. Reward.

General Dynamics News

Published by General Dynamics Corporation, One Rockefeller Plaza, New York, N.Y. 10020.

Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

Atlases Will Boost AF Re-Entry Vehicles

(Continued from Page 1)

"loading" and "bending" to the point of structural failure. A vacuum was created in the upper section of the adapter and the lower section was pressurized in simulation of conditions during flight.

A mass model representative of the PRIME vehicle was mounted at its center of gravity on a 50-foot "pendulum" for reentry vehicle separation tests at E Tower. An air bearing used in the system enabled the model to move in any direction as it was pushed out into an almost flat trajectory.

Several of the mass model separation tests have been designated to show the effects of various disconnect failures upon vehicle separation.

Hal Wegener is engineering supervisor in charge of the PRIME tests at Point Loma. Norman Takvam is test conductor for the match-mate and shroud jettison tests, Ronald Clarke for the re-entry vehicle separation tests and Angrim Carlson for the adapter structural tests. W. J. Christman and Dale Kuhlman are lead engineers.

'Bravo' Again Moored For Bermuda Test

The oceanographic data-gathering buoy "Bravo" has been moored off Bermuda in the second phase of a testing program to determine the effect of mooring line changes on buoy performance, according to Convair's Stan Uyeda, in charge of marine operations.

This will be the last test in the Bermuda area for Bravo, developed by Convair for the Office of Naval Research, Robert Devereux, ocean data station program manager, said.

Heading the Bermuda operation is K. N. Jones. Other team members are S. L. Bettis, R. J. Bjorstrom, and W. A. Schmitz Jr. Assisting in preparation for deployment were John Thayer, Dennis Hyland, D. K. Smith, and Fred McCord. J. H. Winters Jr. was reliability engineer.



WESTERN WINNER—P. I. Harr, director of reliability for General Dynamics Corp., right center, presents Convair Craftsmanship award plaque for August win at Western Test Range to A. H. Hoines, site manager, for ABRES A personnel. Present were Lt. Col. Bobby Houchin, site commander; D. L. Fagan, Convair WTR operations manager; and F. R. Lee Jr., launch vehicle programs reliability control manager. Win was fifth of year and ninth since program began for ABRES A.

GD Engineers Take Part in Lecture Series

General Dynamics engineers from Convair and Electronics-SD are contributing their time and knowledge to a pilot program sponsored by the San Diego Industry-Education Council at the request of San Diego area teachers who wish to increase their familiarity with the industrial field.

The 12-lecture series, "Applications of Mathematics in Industry," is being given this semester for 52 senior and junior high school mathematics teachers in the Sweetwater and Grossmont school districts as a forerunner of what may be a comprehensive program for all San Diego county. The present course has been approved by the county Board of Education for teachers' credit.

First two lectures were given by Robert M. Williams, Convair manager of systems engineering and predesign — the first, on "Linear Programming Applications," followed by "Problem Applications."

John Silva, Electronics-SD senior electronics engineer in advanced development laboratory, lectured on "Matrix Techniques in Electronic Analysis and Synthesis." Silva, in addition to his full-time position at Electronics, is on the SD State College faculty as assistant professor in electronics engineering.

Bruce Beach, also of Electronics-SD, spoke on "Apollo Project Tracking Computations" at the last October lecture. Beach is engineering and analysis group leader in the Electronics-SD computer technology department.

W. E. Knapton, Convair design specialist, is scheduled to give both of this month's lectures. The first will be on "Cost Effectiveness" on Nov. 10 and the second on "Vehicle Synthesis" Nov. 17.

Specialists from Navy Electronics Laboratory and other local companies will fill out the program.

The Industry-Education Council is headed by Convair's C. F. McMenamy as chairman of the board, and the lecture series coordinated by James Coxey while he served on the Council as Electronics-SD representative. Since Coxey's transfer to Convair as design specialist in systems technology he has been succeeded on the Council by Frank Hickey, assistant to Electronics-SD general manager.

Librarians to Meet At Kearny Mesa Plant

About 100 members of the San Diego Chapter of the Special Libraries Association will be guests of Convair division Friday evening (Nov. 4) for a dinner meeting and library tour at the Kearny Mesa plant.

The meeting coincides with the 25th anniversary of Convair division's engineering library at Lindbergh Field and the 10th anniversary of the library at Kearny Mesa.

Dept. 454 at Kearny Mesa Winner With Quality Boost of 80 Pct.

Dept. 454, Convair division's plaster, plastics, foundry and wood shop at Kearny Mesa, won "Craftsmen of the Month" honors for September by topping other Convair departments in the San Diego area with a 121.3 quality index.

W. E. Magnuson, chairman of the division's "Do Good Work" program, said Dept. 454 personnel improved quality of their work by almost 80 per cent by reducing defects from .14 per 100 manhours worked for the past six months to .04 for the past three months.

Dept. 454 won the first monthly Craftsmanship competition when the program began in January, 1964, and also took top honors in March and May, 1965.

Each employe in the department will receive a silver Craftsmanship pin with the number "4" engraved on it in recognition of the four wins.

Runner-up in the September tabulation was Dept. 973, the Combined Systems Test Stand at Kearny Mesa, with a quality index of 119.2 and defect reduction from 1.85 per 100 manhours for the past six months to .66 for the past three months.

Eighteen of the 28 departments at Kearny Mesa and Lindbergh Field in the competition showed improved performance with quality index totals of more than 100.

Centaur Operational For Two-Burn Tasks

(Continued from Page 1)

tion of the 1,740-lb. Surveyor mass model into orbit toward a "paper moon" 226,000 miles in space.

"We're highly elated," Hansen commented after the flight. "Our future Centaur program has been planned on the basis that this flight would be completely successful. Anything short of this would have meant delay."

Hansen said Centaur's two-burn trajectory mode will be used for the next operational Surveyor launch, scheduled by NASA for the first quarter of 1967. Centaur had single-burn direct ascent missions on the previous Surveyor 1 and Surveyor B launches.

The Centaur used in the AC-9 flight was heavily instrumented, carrying about 100 liquid vapor and temperature sensors mounted inside and outside the liquid hydrogen tank for measuring behavior of the liquid hydrogen fuel during the parking orbit and engine restart sequence.

Mgt. Club Sponsors Tax Instruction

Four-meeting courses on "Your Income Tax" will be sponsored by Convair Management Club beginning next week at Lindbergh Field and Kearny Mesa.

G. V. Baughman of Jay Kay Tax Service will instruct. Enrollment fee is $2.

Lindbergh Field classes will be Mondays from 4:45 to 6:45 p.m. Nov. 7 through 28 in the Bldg. 14 second floor auditorium. Kearny Mesa sessions will be Tuesdays from 5 to 7 p.m. in the CRA auditorium.

Enrollment ends Friday (Nov. 4) and registration forms are to be mailed to Registration Desk, KM mail zone 124-00.



COST CUTTING—Commendation certificates for cost reduction proposals that will save Convair division more than $90,000 annually are presented by M. V. Wisdom, industrial relations director, left, to J. K. Field, chief of employe services, center, and J. J. Jackson, Lindbergh Field industrial relations representative. Field's proposals for improved group insurance procedures will save an estimated $77,065 and Jackson's proposal for increased efficiency in personnel utilization an estimated $12,955.

Organized Force Vital in Changing World, Says Roger Lewis

Roger Lewis, president of General Dynamics Corporation, addressing major figures in the aviation and aerospace world attending the annual Wings Club meeting last month in New York City, discussed the "military-industrial complex."

The phrase, which was used by President Eisenhower in his farewell address to the nation just before leaving office, has been widely quoted, and, Lewis said, widely misinterpreted.

Lewis said the "clear implication" of extremist groups that "military and industrial forces are in league to seize power," ignores the presence of such safeguards as civilian control of the military, increasingly strict government procurement regulations, intensifying competition and rapidly changing technology.

Lewis recalled President Eisenhower's words:

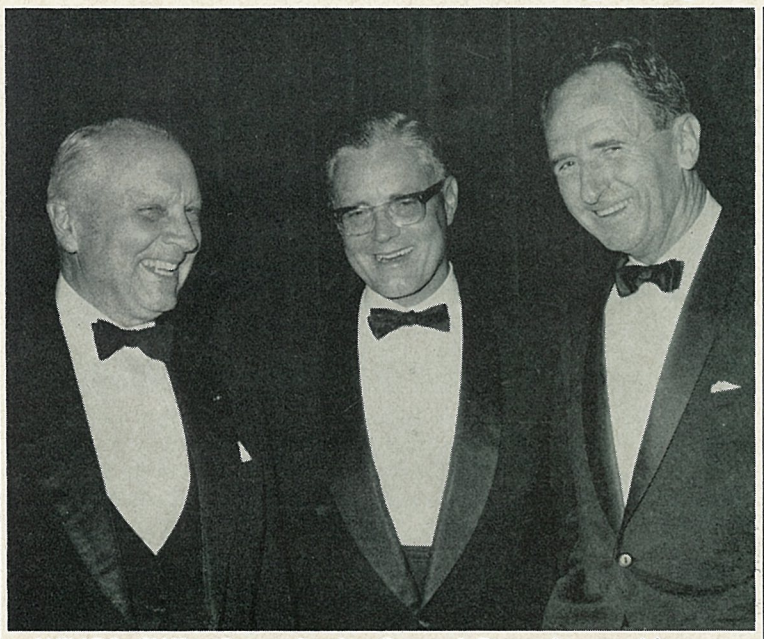
"Conjunction of an immense military establishment and a large arms industry is new in the American experience . . . We recognize the imperative need for this development. Yet, we must not fail to comprehend its grave implications. Our toil, resources and livelihood are all involved; so is the very structure of our society.

"In the councils of Government, we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex. The potential for the disastrous rise of misplaced power exists and will persist."

In interpreting President Eisenhower's remarks Lewis said:

"We can only speculate that, as one who had spent all his life in the service of his country—as soldier and President—he was concerned about the size and weight of the military organization that he foresaw as permanent and about the extent to which our industrial base is needed to support our military power.

"Our military organization was large then; it is larger now. About 10 per cent of our gross national product presently goes for defense . . . Today we have more than three million men and women in uniforms.



WINGS CLUB—Roger Lewis, General Dynamics president, was principal speaker last month at Wings Club's annual dinner in New York City. From left: Juan Trippe, Chairman of the Board, Pan American World Airways, Richard M. Jackson, Wings Club president, and Lewis.

FREE PRESS A SAFEGUARD

"There are more than a million civilians in the Department of Defense, and perhaps two or three million persons in the private sector directly or indirectly involved in defense-related activity . . .

"Certainly this creates pressure to stimulate or perpetuate defense activity, but this pressure is unusually local, temporary and need not be considered undue influence. It is boisterous, but hardly harmful—so long as there is free speech, a free press and lively public interest and debate . . .

"But there is far more involved than the question of the size of our forces and the economic impact of awards and cancellations. There is a cynicism afoot today that fails to see anything unique in the American tradition or to recognize the importance of strength in a world rocking with change . . .

"Certainly we must be on guard against any possibility of collusion or conspiracy in any form, but the United States is not prewar Germany or Japan . . .

"There are many sound and obvious reasons why it is not likely to happen here and now. Let me give you four . . .

"First, our Department of Defense, while increasingly streamlined, increasingly responsive, and magnificently equipped with the best that American industry can provide, is still under the direct control of the legislative and executive branches of our government . . .

"As the military are controlled by elected and appointed officials in the executive and legislative branches, those officials in turn are responsible to you and me—the electorate.

BUYER-SELLER ROLES CITED

"Second, all industry is subject to the laws of the market place and to strict Government authority and regulation, just as is commerce or agriculure.

"Third, defense and industry operate in a conventional buyer-seller relationship. The Defense Department has the whole of industry available to it and operates much as any big purchaser would operate in trying to get the most product for the least money. Because public money is involved, elaborate procedures and regulations have evolved to assure that all qualified bidders have an opportunity to compete, and that maximum use of the competitive forces inherent in our industrial system is carefully exploited. Competitions are run, awards are made, and contracts are drawn under conditions of severe and open competition.

"There are about 40,000 companies doing defense work, about three hundred of which can be considered major suppliers. If there is serious concern that this could be a manageable element of any complex, take a look at who is in which category—and for how long. If there is suspicion of any private understandings for mutual advantage, take a look at the profitable defense work as compared with commercial work of the same type or by the same company.

"Fourth, additional checks and balances are provided by access to our vast scientific and intellectual resources that are independent of industry in that they do not themselves engage in the production of hardware. All agencies of government make frequent use of special advisory boards of outstanding individuals. The great laboratories of NASA, the Bureau of Standards and the Atomic Energy Commission supply important technical input and controls. The university structure, publicly supported and independent alike, is available by contract . . .

"We live in an age of anxiety brought about by great technological and social changes . . . It is a world in which the alternative to organized force is anarchy . . .

SACRIFICE FALLS UPON OUR BEST

"President Eisenhower performed a great service in calling our attention to the emergence of a large military establishment. He also foresaw that it would be needed indefinitely.

"He must be astounded, however, at the way in which his words have been interpreted and the specious arguments they have been made to support.

"We share the blessings of liberty equally, but the cost of securing and defending them calls for the greatest sacrifice by a relative few. Draftee or volunteer, officer or enlisted man, it is the man in uniform who risks and often gives his life that all may be safe. The best among us in the nation dedicate their most productive years to the service of their country . . .

"The translation of science and technology into weapons is exceedingly difficult and complex, made infinitely more so by continuous fluidity in the nature of the threats which confront us and the constantly unfolding knowledge which may be applicable to improved weapons.

"Yet our lives depend on the speed and the thoroughness with which this can be done and on the rate of our social progress, the economy with which we use those resources.

"I think you will agree that we cannot leave these great questions to the extremists of any persuasion — or to the frightened — or to the bully! Least of all can we leave them to the cynical or the bored.

"No, our work is not finished. It has only just begun."

Zoeckler Flies F-111A No. 3

Maj. Gen. John L. Zoeckler made a one-hour and 25-minute flight in an F-111A recently from Fort Worth division.

As deputy commander of Aeronautical Systems Division, Wright-Patterson Air Force Base, Dayton, General Zoeckler's F-111 office is responsible for procurement of the airplanes.

The general's flight was the 125th for F-111A No. 3. The flight included use of the airplane's terrain-following radar system and automatic let-down (descent) from an altitude of 18,000 feet, with automatic leveling off at low altitude.

General Zoeckler used the airplane's variable-sweep wings fully extended for takeoff, and fully swept back for operations at near-supersonic speeds. Accompanying him during the flight was Maj. H. M. West, chief of Air Force flight operations at the General Dynamics plant in Fort Worth.

Frank Davis Will Speak On F-111 Program Nov. 10

Frank W. Davis, Fort Worth division president, will present a "Progress Report on the F-111" at the Convair Management Club meeting Thursday, Nov. 10, in the Palm Room of the U.S. Grant Hotel.

Color flight films of the F-111 will be shown in conjunction with the talk.

Tickets are now on sale through club boosters at $3.25 each. The social hour will be at 6 p.m. with dinner at 7.

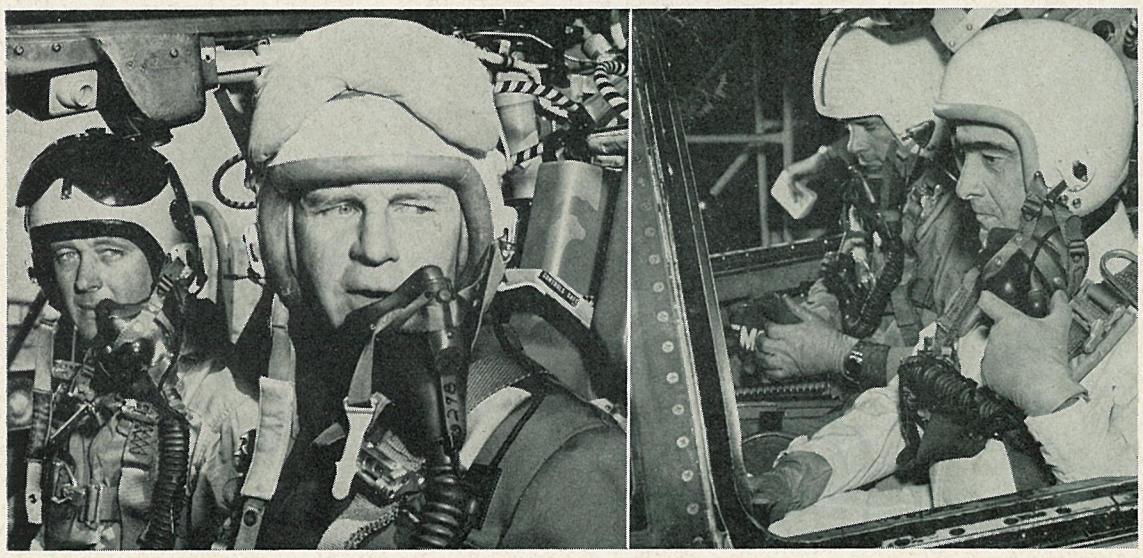
The meeting is sponsored by reliability control departments with Paul M. Benner, chairman. R. H. Gilliland is in charge of arrangements; Fred R. Lee, program and entertainment; D. R. Archibald, tickets; and R. S. Campbell, publicity.

Davis, president of the Fort Worth division since 1961, joined Convair's former Vultee Field division in Downey, Calif., in 1940 and served as chief of aerodynamics and flight test.

It was at Vultee Field that he became the first U.S. pilot to fly a turboprop plane, the experimental XP-81 fighter.

As assistant to Convair's vice president-engineering in 1952, he worked primarily in aircraft and missile research and development, and became Convair's chief engineer at Fort Worth two years later.

Davis, a graduate of California Institute of Technology, is a former Marine Corps pilot.



GENERALS ALOFT—At right, Maj. Gen. John L. Zoeckler is in cockpit of F-111A for flight at Fort Worth, accompanied by Maj. H. M. West, Air Force chief of flight at plant. In photo at left is Maj. Gen. J. S. Samuel, director of plans for Strategic Air Command, who piloted F-111A during two-hour flight from Edwards AFB. With him is Maj. Robert K. Parsons.

Concept of Nuclear Powered Moon 'Trade Post' Outlined

Establishment of a permanent nuclear-powered "trading post" on the moon to provide supplies for lunar exploration vehicles was among speculative concepts discussed by two Convair division representatives at a recent World Astronautics Congress meeting in Madrid, Spain.

Dr. Robert C. Armstrong, manager of Convair's life sciences, Dept. 592-0, and C. D. King, a life sciences engineering design specialist, presented a paper on "Life Support Systems on the Moon" at the meeting — the Second Lunar International Laboratory Symposium, Life Sciences Research and Lunar Medicine, organized by the IAA.

The Convair scientists envision a lunar "trading post" resupplying small exploration vehicles with water, oxygen, food, carbon dioxide absorbers and fuel for their propulsion systems and fuel or charged batteries for their power systems.

Wastes stored by the vehicles also would be returned to the "trading post" for regeneration.

Armstrong and King pointed out that lunar rocks containing large amounts of silicates are believed to be a potential source of water and oxygen (through chemical reaction) and that deposits of ice may be found in permanently shadowed cavities.

They said the first manned Apollo lunar mission may be expected to be followed by progressively longer and more complex missions.

Armstrong and King said the Apollo short-duration missions, employing existing "open" life support systems, should include test plans and equipment to establish design guides for second-generation "semi-closed" regenerable life support systems.

The second-generation missions in turn, they said, should accomplish experiments for design of third-generation "closed" systems.

Present "open" life support systems use expendable supplies and wastes are jettisoned or collected and stored. In the "closed" systems, waste materials would be processed to regenerate materials required for sustenance. Food would be produced from wastes in "fully closed" systems.

Armstrong and King presented detailed information on the prototype life support system designed and built by Convair for NASA's Langley Research Center, which will serve as a base for development of more advanced systems.

ELECTRO-DYNAMIC MANAGER APPOINTED

Herman H. Hanink has been named general manager of Electro Dynamic division of General Dynamics, Roger Lewis, president, announced. He replaces Raymond B. Carey, Jr., who has resigned.

Hanink, 48, comes to General Dynamics from the Curtiss-Wright Corp. where he was corporate vice president of marketing, with responsibility for the marketing activities of the five corporate divisions. He joined Curtiss-Wright's Aeronautical division in 1938, and had been with the company ever since in various engineering, manufacturing and marketing functions.

Hanink was graduated from the University of Michigan in 1938 with a bachelor's degree in metallurgical and chemical engineering.



Net Sales Ahead Of Last Year

(Continued from Page 1)

In other aircraft programs, the Canadair CL-84 tilt-wing vertical and short takeoff plane has successfully demonstrated its ability to lift a man from a life raft in a simulated air-sea rescue mission, Lewis said. The CL-84 combines the 300-mph cruising speeds of conventional aircraft with the vertical takeoff and landing and hovering capabilities of helicopters.

In General Dynamics' space activities, Lewis noted, the National Aeronautics and Space Administration has awarded the Convair division a $15 million contract for five additional Centaur high-energy space vehicles.

The Atlas/Centaur launched its second Surveyor spacecraft toward the moon with unprecedented accuracy on Sept. 20.

In preparation for the launch of Surveyor III to the moon next year, the Atlas/Centaur was launched last week on a difficult two-burn mission in which it first achieved earth-orbit, then restarted its engines to accelerate to a simulated lunar transfer orbit toward a "paper moon" in space 226,000 miles from the earth.

On Aug. 19, the Atlas, in combination with an Agena upper stage, launched the lunar orbiter spacecraft that radioed back pictures of the moon's surface from lunar orbit.

In marine systems, Lewis said, the nuclear attack submarines Whale and Sunfish were christened in a dual ceremony Oct. 14 at the Quincy division. At Electric Boat three nuclear submarines were delivered to the Navy during the third quarter; two more were launched and construction was begun on still another.

The third Apollo tracking ship, the USNS Mercury, was delivered to the Navy Sept. 16. The first of three ships, the USNS Vanguard, sailed for Port Canaveral Oct. 12 to take part in an important tracking exercise in preparation for the NASA first manned expedition to the moon.

Development work is continuing at Pomona division on the Standard Missile under contracts of $16 million awarded during the quarter, Lewis said. This basic surface-to-air weapon also is the subject of a recent $7.5 million research contract awarded to Pomona by the Navy for exploration of the missile's use as an anti-radiation weapon launched from aircraft against surface targets. Initial flight tests have been successful.

Fourteen electric utilities have joined with General Atomic division in the program to develop a zinc-air battery for propulsion for motor vehicles, Lewis reported. Two experimental battery prototypes have been operated successfully at the division's laboratories in a development program that has been under way with the Edison Electric Institute since 1964.

Centaur's Strength Capability May Be Far More Than Rated

One of Convair division's Centaur high-energy second-stage vehicles is undergoing a strenuous testing program at Point Loma Test Site, San Diego, to demonstrate that it can withstand more than 50 per cent more "bending load" than its current rated capacity.

Wellington Su, design specialist in Dept. 966-1 at Kearny Mesa, who is responsible for strength capability of Centaur, said 12 different tests are being run for NASA's Lewis Research Center in K Tower at Point Loma with completion of the series scheduled by December.

In initial tests, five million inch-pounds of "bending moment" loading were applied to the Centaur tank — a 59 per cent increase over rated capacity. Higher loading also is to be applied in determining "ultimate capacity."

Similar tests are being conducted by NASA on an Atlas booster vehicle at Lewis Research Center's Plum Brook facility at Sandusky, Ohio.

The NASA-funded test programs followed development of new theoretical concepts that pressurized structures such as Atlas and Centaur can carry much higher "bending moment" loads in flight than was anticipated initially.

Early studies for Convair division were conducted by Dr. D. J. Peery, chief of structural analysis, Dept. 587-0, and have been carried on by engineers in structures and stress group departments.

Su said tests to date at Point Loma show that when high "bending moment" loads are applied to the Centaur tank, "elastic buckling" occurs in the tank skin but the "buckling" disappears when the loads are lessened — as would occur in flight — with no effect on the tank and externally attached flight equipment.

"This inherent strength capability may provide us with a minimum 50 per cent increase in rated strength capability that we wish to gain," he said.

Changes in contour of the Centaur skin during the high load testing are being recorded on a Convair-developed traversing profileometer machine with linear motion styluses measuring the deflections of the skin. The transducers used in the system record the changes on strip chart recorders.

The Centaur vehicle's two main tanks were filled with water for six of the initial tests.

Liquid hydrogen and liquid nitrogen are to be used in the tanks for the remaining tests for close simulation of actual flight low temperature conditions.

"Results of these tests will show whether we really have succeeded," Su commented.

Flight configuration nose fairing barrel and an interstage adapter are being used with Centaur in the test program with longitudinal and side loads being applied with hydraulic cylinders.

James Jenness, senior engineer in stress group Dept. 966-4, is responsible engineer for the test program. Robert Hinck is group engineer and Lon Jordan is test conductor at Point Loma.

Results of the test program will be evaluated by both Convair division and NASA officials. Su said information obtained will aid in uprating of Centaur capabilities and in any future Centaur redesign efforts.

The Centaur D-series vehicle being used in the tests has been employed several times previously in other test programs at Point Loma. The booster being used in the tests at Plum Brook is Atlas 116-D.

Mgt. Club Presidents Attend Convention

Management Club presidents of Convair and Electronics groups, Larry Sweeney of Convair and R. W. Perrin of Electronics-SD, were delegates from GD Management Clubs in the San Diego area to the NMA convention in Pittsburgh, Pa., last week, Oct. 26-28.

Also attending were several Convair Management Club officers including Ray Mendoza, financial secretary; Ad Mosco, recording secretary; Harold Hahn, second vice president; Jay Mumford, treasurer; and Bob King, past president, as well as Ralph Bauman, a director of Zone A.



SALES SUPPORT—Howard R. Kennedy, left, manager of graphic services for Convair division, and Norman J. Rutherford, supervisor of art and editorial, Dept. 126-0, look over examples of brochures produced this year to "tell the story" of Convair products and capabilities and for use in support of marketing and recruiting efforts.

Scores of Brochures, Exhibits Back up New Business Effort

Much of the "behind the scenes" work required in support of Convair division's new business acquisition efforts is provided by graphic services departments managed by Howard R. Kennedy.

Art and editorial (Dept. 126-0) has prepared more than 100 major brochures and proposals and scores of other materials including exhibits, marketing kits slides, bulletins, posters and information sheets for the division this year.

There seldom is less than 50 projects listed on the department's "work in progress" board.

"Our chief reason for existence is to provide creative art and writing assistance for the division's new business and internal communication efforts," Norman J. Rutherford, supervisor of the art and editorial department, said.

The department has 34 employes at Kearny Mesa and Lindbergh Field representing all disciplines needed for preparation of proposals, presentations and sales brochures.

Included are designers and illustrators, presentation specialists, slide library and type shop personnel, writers, editors and reproduction typists. Most are professionals with years of experience with both aerospace and commercial advertising, public relations and newspaper firms.

Rutherford said the department is a true service department that "takes a job at any point and carries it through to completion." Engineering personnel prepare drafts in some cases and in others Dept. 126-0 personnel provide total assistance from initial research to publication.

Recently produced brochures range from a 28-page employe recruiting brochure and a whole "family" of capability brochures to single-fold facilities brochures and relatively simple product effectiveness brochures.

Some of the most recent proposals included those for study of maneuverable re-entry vehicles, self-focusing antenna arrays, extra-vehicular astronaut support for antennas and telescopes in space and Orbital Vehicle 1 propulsion module applications.

Most of the printing is done in-plant by graphic reproduction (Dept. 123-0). Photographic assistance is provided by still photo (Dept. 125-0) and motion pictures and television (Dept. 124-0).

Toastmasters Club To Offer Course

Convair Toastmasters Club 3745 will offer a six-session "Speechcraft" course beginning at 4:15 p.m. today (Nov. 2) in CRA Clubhouse auditorium.

H. L. Jensen Jr., club secretary, said the course will cover fundamentals of public speaking that can be of direct assistance to division employes on their jobs.

"This will be a learn by listening and then doing program," he said.

The class will be limited to 20 students and each session will run 45 minutes. Cost is $4. Students joining the club on completion of the course will have their $3 administrative fee to Toastmasters International pre-paid.

For information and registration, phone J. A. De Shazo, educational vice president, at KM ext. 2056, or Jensen, KM ext. 2681.

Facilities Planning Function Formed

Facilities planning administration activities at Convair have been consolidated into a new function, facilities planning (Dept. 202-0), according to an announcement by Division Manager Jack L. Bowers.

The new function includes facilities planning activities formerly assigned to engineering administration and services (Dept. 520-0) and plant engineering (Dept. 250-0).

R. E. Bechtol will head facilities planning as manager, reporting to E. D. Bryant, vice president-operations.



"BOSS OF YEAR"—Francis F. Lingel of Defense Contract Administration Services office at Kearny Mesa, receives "Boss of Year" award from Mission chapter of American Business Women's Association. Nomination was by Mrs. Orline C. Stigall, left, his secretary and personnel clerk.

GD Quality Engineer Attends Symposium

Jack A. Riegert, quality engineer at Pomona division, was one of the industry representatives participating in panel discussions at the first Department of Defense-sponsored symposium on quality control of numerical processes in Oklahoma City, Okla., early last month.

Approximately 135 government and industry representatives made up the working panels during the four-day Numerical Control Data conference, Oct. 3-6.

Guest speakers were Gen. K. B. Hobson, Air Force Logistics Command, Col. O. C. Griffith, Office of Assistant Secretary of Defense; D. W. Douglas Jr., Douglas Aircraft Co., and Dr. G. L. Mangum, manpower advisor to President Johnson.



"COOL" APRON—New lightweight apron being used by Convair machinists during magnesium cutting is examined by safety engineer J. H. Cooper, left, and Harry Turner, lathe machinist. D. R. Anderson, right, engine lathe operator, is wearing heavier rubberized apron previously used.

Lightweight Apron Now 'Fashionable'

"Fashions" are changing in Dept. 731, Convair factory.

Machinists working with magnesium now are wearing lightweight aprons made of scrap vinyl, considerably more comfortable to wear than heavy, rubberized aprons previously worn.

The new apron was designed by James H. Cooper, safety engineer, and produced in Dept. 987 at a cost of less than $1 apiece. Snaps at waist and neck "tailor" the apron to fit the individual.

Two Articles Earn Writing Awards

Dr. Esther Krikorian of physics and infrared section (Dept. 6) has qualified for two Pomona Division Writing Program awards.

Two articles written by Dr. Krikorian were published in Journal of Applied Physics. One was entitled "Deposition of Tantalum, Tantalum Oxide and Tantalum Nitride with Controlled Electrical Characteristics" and the other "Epitaxial Deposition of Germanium by both Sputtering and Evaporation."

DAUGHTER NAMED 'GIRL OF THE MONTH'

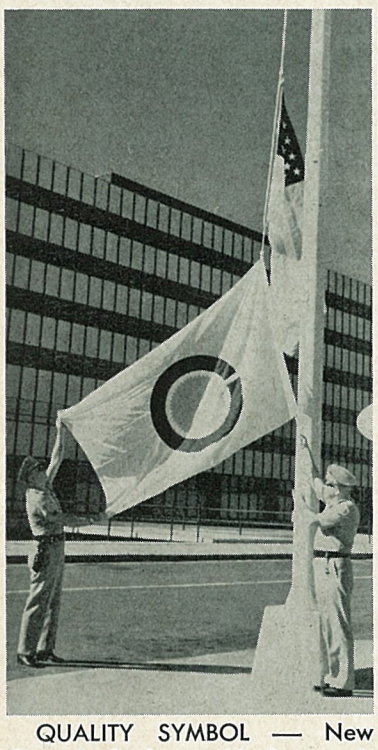
Cindee Maxion, 18, daughter of Mr. and Mrs. Don R. Maxion (he's a Convair customer service representative), was named "Girl of the Month" for September at Grossmont College for her participation in Associated Women Students' activities. She is on the AWS Honor Council, is active in student government, and a member of the college speech team.

Is it news? Pick up a phone and call GD/NEWS

Craftsmanship Banners Flying As Symbol of Drive For Quality

New Convair Craftsmanship banners are flying from flagpoles at the division's facilities in San Diego as a symbol of the division's aim for quality products.

Raising of the banners for the first time last week at Kearny Mesa, Lindbergh Field, Air Force Plant 19 and the Point Loma Test Site coincided with showing of a Department of Defense film, "Right the First Time," for all employes.



QUALITY SYMBOL — New Convair Craftsmanship banner is raised for first time at Kearny Mesa by plant protection officers Roy Lyons, left, and Larry W. Greathouse. Banners will be flown daily from flag staffs at Convair division's San Diego area facilities.

Jack L. Bowers, Convair general manager, in a filmed introduction to the DOD film showings, said making no mistakes is not an impossible challenge "if we keep quality uppermost in our minds, always."

He noted that emphasis on quality of aerospace products in recent years "had made this one of the key issues affecting our future and so it should be important to all of us.

"Keep the film's message in mind as we continue to search for ways of maintaining and improving Convair's image for high quality," he said.

In a pamphlet distributed at the showings Bowers said:

"It isn't something that we must do just because our customers ask us to," he said. "It's something that we want to do as we continue to search for ways of maintaining and improving Convair's image for high quality.

"Convair Craftsmanship is our way of paying close attention to every facet of a project, from conceiving and selling to building, testing, documenting and delivering the final product — a product that bears the stamp of Convair quality, one of which you and I can be justifiably proud.

"I think anything can be measured if we take a reference point, establish goals and chart progress from there," he said. "The challenge is to select meaningful, realistic goals . . . "

Bowers said the Convair Craftsmanship program "will benefit all of us, because as we eliminate mistakes and find better ways to do things, we'll automatically improve our competitive position in the industry. And this opens up more opportunities for each of us to grow and advance."

Convair employes at Eastern Test Range saw the DOD film with Bowers' filmed introduction yesterday (Nov. 1) at meetings in which K. E. Newton, ETR operations manager; W. S. Bradford, ETR chief of reliability control; and W. E. Magnuson, Craftsmanship program chairman, "kicked off" plans for a departmental goal-setting program there.

Western Test Range departments also are formulating a goal-setting program.

Wives Club Plans Tour of Bakery

Convair Wives Club will tour Sunbeam Bakery at 10 a.m. Nov. 10. Reservations are being taken by Mrs. George Robinson, 286-0868, and Mrs. Anthony Calman, 286-2083.

Members of the club are on a bus tour of Palm Springs today (Nov. 2).

Nuclear Cargo Ship System To Be Studied

General Dynamics has been awarded a $394,590 contract by the U. S. Maritime Administration to study the economic and technical feasibility of an advanced nuclear cargo ship system for high-speed container service.

Under the contract, General Dynamics is to provide the application design for a commercial nuclear propulsion plant for a large, high-speed container ship and is to evaluate capital costs, operating costs and productivity of the nuclear-powered ship as equated to conventional fossil-fueled ships.

Various nuclear reactor plants being offered by commercial marine reactor vendors will be evaluated during the study, which will be directed by Corporate Headquarters in New York. The study will last up to 11 months and include cost and productivity comparisons between nuclear and petroleum-fueled ships of approximately 100,000 shaft hp.

One phase of the study will evaluate nuclear-versus-petroleum life-cycle costs and associated operating features for a three-ship transportation system operating on relatively long Far East trade routes.

Technical and economic information sought by the Maritime Administration from the study includes:

Design descriptions, specifications and preliminary plans on installation, maintenance, repair accessibility and methods of refueling for each commercial nuclear propulsion plant evaluated;

Detailed capital and life-cycle operating cost breakdowns for each propulsion plant and ship application studied, including first-time charges and installation, fuel and refueling costs;

Manning requirements based on maximum automation of the man-machine interphase, including the number of duty stations, job descriptions, estimated salaries and space requirements.



BEST OF CLASS—Eugene C. Keefer, chief of motion pictures and television for Convair division, accepts "Indy" award from Actress "Casey" Lewis.

'Space Living' Film Winner

Convair division's motion pictures and television Dept. 124-0 has been awarded a coveted "Indy" statuette plaque in the 1966 Industrial Film Awards Competition for Part 2 of its three-part "Living in Space" color film. The film was judged best in the "research and development" class.

Eugene C. Keefer, chief of motion pictures and television, accepted the award at the Association of Cinema Laboratories' annual awards banquet in Los Angeles.

Robert Montague, documentary group leader for the department and director and editor of the award winning film, also was present.

The "Living in Space" film depicted use of the regenerative life support system created by Convair division for NASA's Langley Research Center in sustaining a four-man crew "in space" for a year.

How the crew members maintain bodily functions, eat and get pure air and water and maintain proper temperatures were shown.

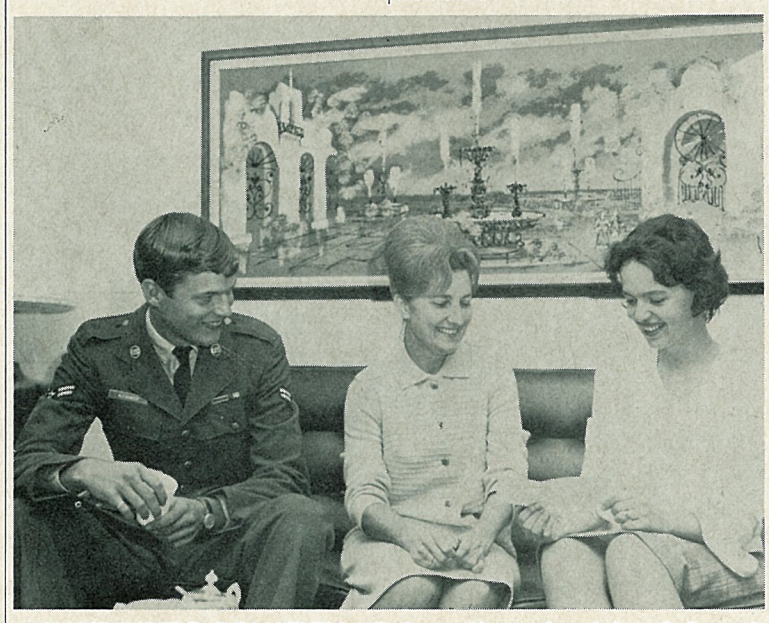
"The processes are obviously complex but their operation is clearly explained by means of excellent animated diagrams," Industrial Photography magazine commented.

The award was the 29th national or international award the Convair motion pictures and television department has received since 1960.

Lunar Orbiter 2 Launch Scheduled

Atlas SLV-3 No. 5802 and an Agena second-stage have been readied at Complex 13 at Cape Kennedy for launch of Lunar Orbiter 2 next week.

Lunar Orbiter 1 completed its photographic mission Sept. 14 with 211 photographic frames being exposed, processed, and transmitted to tracking stations.



VANDENBERG DONATION—Dolores Kennedy, right of Convair design support function at Vandenberg AFB, delivered $500 Con-Trib contribution from Convair employes to new Santa Maria Servicemen's Center. Accepting donation is Mrs. Vi Tempel, Center director, while A2/c Jay Alexander, visiting serviceman from 4392nd Aerospace Support Group, approves.

Sports & Recreation

Jack Gallant New Sports Car Prexy

New officers of the CRA Sports Car Club were installed Saturday at Gillespie Field Clubhouse.

They are Jack Gallant, president; Al Cooper, vice president; Kathy Bertsch, secretary; and Howard Peterson, treasurer.

Members of the club's judicial board installed were Bob Hayward, Marvin Jensen, Al Oehler, Howard "Spud" Riggs, Henry Sterner and Sid Weiner.

Gerry Wright, former commissioner who recently retired, was presented a cocktail serving set in appreciation for his many years of service to the club.

Wright was founder and first president and had served as commissioner for 12 years.

H. W. "Hank" Callihan is new club commissioner. Hayward, outgoing president, served as master of ceremonies for the installation.

Dry Land Ski Class Will Start Sunday

Novice skiers will have a chance to get the feel of skis in a series of dry land ski classes, which start this Sunday (Nov. 6) under joint sponsorship of CRA and Don Diego Ski clubs.

Classes will be held Nov. 6, 13, 20 at 1:30 and 3 p.m. on the front lawn of the Puppet Theater in Balboa Park. Sessions will be about an hour long.

CRA Commissioner Joe Harris, in charge of the instruction, said that the course will include lectures, movies, and exercises to learn basic fundamentals of skiing. Skis, boots, and poles will be furnished.

Beginners will make a trip to the snow at Snow Summit, Big Bear, the weekend of Dec. 3-4 to practice what they will have learned.

For information call Harris at 284-0278 between noon and 3 p.m.

Rockhounds Staging Special Program

CRA Rockhounds will stage a special program, open to the public, next Wednesday (Nov. 9) at 7:30 p.m. in the CRA Clubhouse.

The Bell Choraleers will present the entertainment.

The Rockhounds will travel to the International Rockhound Roundup, 11 miles west of Barstow, over the weekend of Nov. 12 and 13. Map and directions will be carried in the November Rockhound Bulletin. Everyone is welcome to join the rockhound trek.

Two Tie For Lead In Camera Contest

CRA Camera Club quarterly contest leaders to date in the advanced color slide group are Jim Mildice and Kenney Rinker, each with three winning slides, and Dorothy Mildice and Eric Wolf, with one apiece.

In the beginners' color slide group, Clark Windsor has had two winning entries and Marianne Wolf, one.

David Farrelly Jr. Wins Rifle Match

Three of Convair's Junior Rifleers fired in the South Bay Gun Club monthly matches Oct. 16 in San Ysidro.

David Farrelly Jr. won the first place marksmanship plaque. Bill Sutherland and Phil Glick were others competing.

HOOP MANAGERS MEET NOV. 3

Managers of teams planning to enter CRA fast and slow-break basketball league play will meet at 7 p.m. tomorrow (Nov. 3) in Room C at CRA Clubhouse. Rosters for each team will be submitted at the meeting.

CRA Offers Tickets In Hockey Drawing

Want free tickets to watch the San Diego Gulls play hockey in one of their first home games at the new San Diego International Sports Arena?

Ninety tickets — 10 for each of the first nine home games— will be given (in multiples of two) to winners in a CRA drawing Nov. 15.

Employes may enter by writing name, division, plant, department number, shift and plant phone extension on a slip of paper and depositing it in one of the deposit boxes at Convair, Stromberg-Carlson or Electronics-SD employe services outlets, the Bldg. 51 engineering mail room at Lindbergh Field, with Dorothy in H. C. Medearis' office in Bldg. 3 at Air Force Plant 19 or at CRA Clubhouse.

The tickets will be for games with Seattle, Nov. 17 and 19; Los Angeles, Nov. 23; Portland, Nov. 26 and 29; Los Angeles, Dec. 1 Vancouver, Dec. 4 and 7, and Los Angeles, Dec. 9.

Telephone Engineer Will Discuss Lasers

"Conquest of Light" will be discussed by Jerry Yeakley, a Pacific Telephone Co. engineer, at a meeting of the Convair-sponsored Junior Science Club at 7:30 p.m. Friday (Nov. 4) in CRA Clubhouse.

Use of laser light for transmission of sound will be demonstrated.

Junior high and high school students with scientific interests are invited to attend club meetings the first and third Fridays each month. For information, call Keith Sears, KM ext. 2328.

Coineers Will Hold Draw For Turkeys

Convair Coineers will arrange exhibits on the theme, "Women in Numismatics," for the Nov. 16 meeting, 7:30 p.m., in the Lindbergh Field cafeteria.

Three turkeys will be door prizes in a "members only" drawing. Other door prizes will be two 1947 BU Panama Balboa crowns. Raffle prizes will be a 1954 U.S. uncirculated mint set, a 1955 U.S. proof set, and 1956, 1963 and 1964 proof sets. Giveaway coin to all attending will be a BU Australian 1966 two-cent piece.

More Card Players Sought by Club

Francys Darr and Eve Leasure took North-South and Bob Rustad and Stella Christie East-West honors in CRA Bridge Club play Oct. 14.

Winners in Howell system play Oct. 21 were R. P. and Idie Edwards, first, and Burton and Margaret Grindstaff, second.

Additional players are being sought by the club for play at 7:30 p.m. Fridays in CRA Clubhouse. For information, phone Rustad, the club commissioner, at KM ext. 3689.

BARGAIN FOOTBALL TICKETS OFFERED

Reduced-price tickets for the San Diego Chargers-Oakland Raiders game Nov. 13 in Balboa Stadium are on sale today through Nov. 10 at employe service outlets and CRA Clubhouse. Price is $2.50, a reduction of $1, for reserved seats in the coaches' circle.

GOLFERS TO WIN HOLIDAY BIRDS

Thanksgiving turkeys will be given to winners of the Nov. 12-13 CRA golf tournament at Coronado. Reservations can be made and starting times obtained by phoning KM ext. 1111 by Monday (Nov. 7).

Electronic System Developed To Pinpoint Combat Troops

Convair division is developing two major portions of a new electronic range measurement system (RMS-2) for experimental use by the Army Combat Developments Command Experimentation Command at Fort Ord, Calif., under a $1.9 million contract.

The RMS-2 system is designed to pinpoint location of small scattered combat units and provide fast electronic relay of information.

Twenty-five responder units and six interrogator stations will be designed and built for use in simulated battlefield studies.

Responder units contain battery-operated transceivers, weigh less than 15 pounds and can be carried as back packs by individual soldiers or mounted on field pieces, vehicles or aircraft.

Associated with the transceiver is a small "input/output module" that can be attached to the soldier's belt and used in sending and receiving digital-signal messages through use of its series of toggle switches and small signal lights. Each soldier using a responder unit will have a helmet equipped with antenna and earphone.

The interrogator stations consist of antennas mounted on 20-foot towers with related sending and receiving equipment and are designed for unattended operation for several days.

A central processor computer unit housed in a mobile van will be used for message sending and receiving and almost instant three-dimensional calculation of field position of the responder unit.

Orison Wade of special programs Dept. 506-2, program manager for Convair, said the system is designed for ultimate operation of 1,000 responder units and 120 interrogator stations.

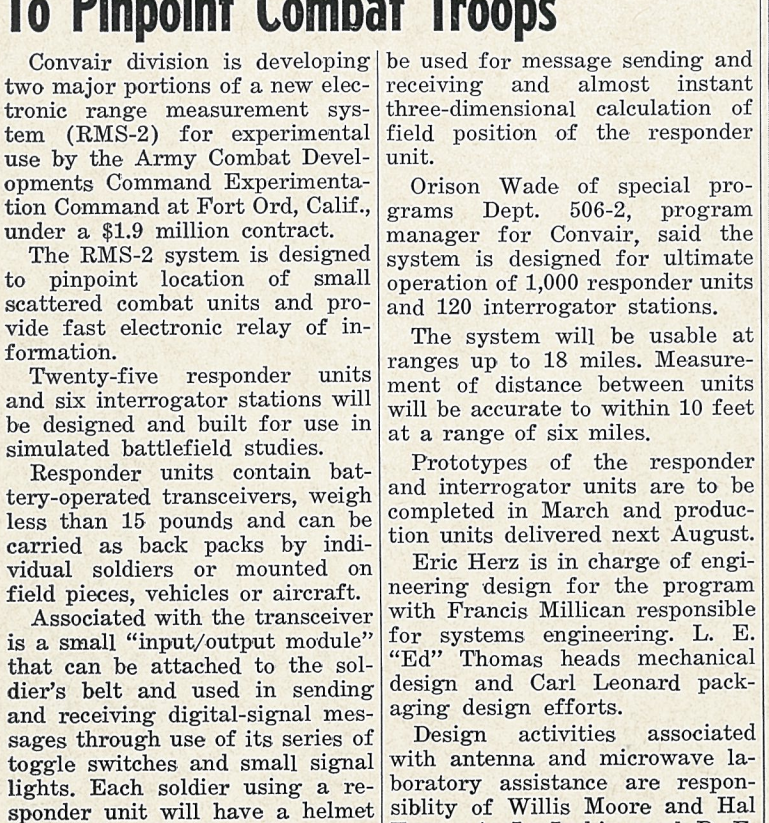
The system will be usable at ranges up to 18 miles. Measurement of distance between units will be accurate to within 10 feet at a range of six miles.

Prototypes of the responder and interrogator units are to be completed in March and production units delivered next August.

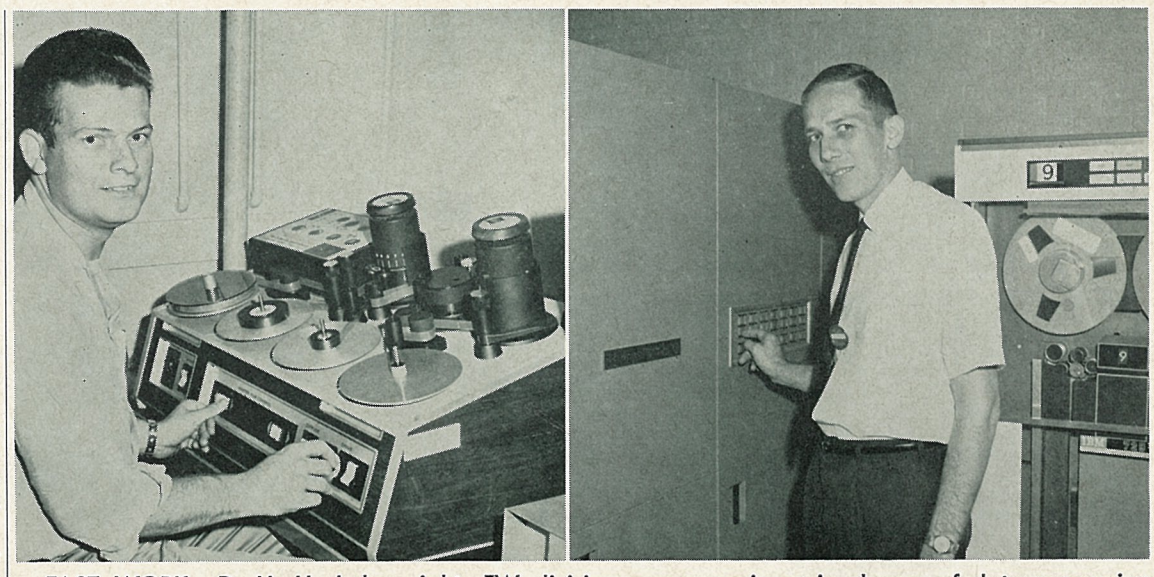
Eric Herz is in charge of engineering design for the program with Francis Millican responsible for systems engineering. L. E. "Ed" Thomas heads mechanical design and Carl Leonard packaging design efforts.

Design activities associated with antenna and microwave laboratory assistance are responsiblity of Willis Moore and Hal Tracy. A. L. Jenkins and P. E. Marenholtz are designing digital logic circuitry.

R. V. Oexner (780-2) handles all RMS-2 manufacturing operations, D. W. Schultz (845-3) is coordinator for material procurement and W. C. Seaforth (145-1) is responsible for reliability control.



POSITION LOCATOR—W. S. Cushman, a Convair design draftsman, demonstrates model of range measurement system responder unit being developed by Convair for Army experimental use. Hal Tracy, left, examines "input/output module" attached to belt while Ed Thomas adjusts back pack containing transceiver radio equipment.



FAST WORK—D. H. Huckaby, right, FW division group engineer in charge of data processing in research and engineering, flips control of new Stromberg-Carlson 4020, capable of turning out sophisticated engineering graphs on microfilm or photo-recording paper. At left, Wayne Law, FW Dept. 17-4, demonstrates Kalvar film duplicating equipment used in conjunction with 4020.

Atlas-Agena Shot Slated

History will be repeating itself next week when Convair division's 500th Atlas is launched from Complex 14 at Cape Kennedy — the same complex from which the first Atlas was launched on July 11, 1957.

Atlas SLV-3 No. 5307 — the 500th Atlas — will boost an Agena target vehicle into space in the 12th and final mission in the Gemini program.

Astronauts James A. Lovell Jr., a Navy captain, and Edwin E. "Buzz" Aldrin Jr., an Air Force major, are to rendezvous and dock with the Agena on their third orbit at 185 miles altitude.

Richard W. Keehn, Atlas SLV program manager, and E. R. McFadden, Convair program manager for Gemini target vehicles, were at NASA-Houston last week for a technical review.

A "tiger team" from the Kearny Mesa plant left Monday to join McFadden for an intensive review of the Atlas at the Cape.

Members of the team and areas of responsibility were Arthur Colvin, pneumatics; Howard Davis, hydraulics; James Fithian, propellant utilization; Clarke Hay, electrical systems; Richard Nicholson, quality control; Duane Quinn, flight control, and David Stein, propulsion.

A simultaneous launch demonstration, directed by NASA-Houston, was scheduled yesterday for both the Atlas-Agena and Titan 2-Gemini 12 spacecraft systems. Lovell and Aldrin were in their spacecraft atop their booster at Complex 19 for the dry run.

Scheduled early next week are a status review of the Atlas-Agena and Titan-Gemini by NASA-Houston and a flight safety review meeting to be conducted by Brig. Gen. Paul T. Cooper, commander of the Air Force Space Systems Division.

Tanking tests and flight acceptance composite tests for the Atlas previously have been completed at the Cape.

Stromberg-Carlson Equipment Brings Saving to FW Division

A Stromberg-Carlson 4020 computer recorder capable of recording 17,000 characters a second on microfilm and photo-recording paper is being used at Fort Worth division to:

Convert digital signals into combinations of alphanumeric printing (letters and numbers), curve plotting, and line drawings — individually or in any combination.

Record a variety of graphs from computer-generated data, such as plots on engine performance, flight-test time histories (using frame-butting techniques), trajectory simulations, and many other types of curve plots.

Produce tool-path drawings, animations, logic diagrams, and other line drawings.

Result: about $150,000 a year in savings.

"This type of work took much longer using previous equipment and doing much of the plotting manually," said D. H. Huckaby, group engineer in charge of data processing in research and engineering.

The S-C 4020 was purchased from S-C's Data Products facility in San Diego. It is installed in the systems technology department.

It records on both 16 and 35mm microfilm and photo-recording paper.

"The machine will be used as an output device for a wide variety of engineering and scientific computing because of its ability to rapidly translate coded data into complex annotated graphs," Huckaby pointed out.

Since it can print about 5,000 lines a minute, the S-C 4020 is also being used to service a number of business data center applications.



SPONSORS — Roger Lewis, General Dynamics president, discusses christening procedure with Mrs. Russell B. Long, center, wife of the Louisiana senator, and Mrs. Robert C. Byrd, wife of the West Virginia senator, just before ladies christened twin nuclear attack submarines at Quincy, Mass., last month.

GD Management Club Leaders Confer at Pittsburgh Meeting

Presidents of General Dynamics Management Clubs, including those of groups not presently members of the National Management Association, shared information about their respective club activities at a special GD luncheon meeting held during the recent NMA convention in Pittsburgh, Pa.

Purpose of the meeting, called by J. L. Budros, Corporate director of compensation and personnel development, was to outline the Corporation's and divisions' interest and support of management organizations.

Budros presented the Corporate Headquarters' view. Jerry Mattson of Electronics-Rochester spoke on "A Management Laboratory." Jim Kenna of the Fort Worth Management Association talked on management clubs as "Company Image Builders."

Larry Sweeney of the Convair Management Club discussed "Management Development Activities." Topic of Ira Sykes of Pomona was "Social Activities."

T. G. Croft of Corporate Headquarters chose "Balanced Participation — Management's View" as his subject.





CONFERENCE—Representatives from far-flung GD divisions held security conference at Fort Worth recently. Standing, from left: Bob O'Grady, manager industrial security, Electric Boat; Dennis Chesshir, industrial security, FW; F. W. Davis, FW division president; Peter Lodwick, manager industrial security, Canadair; Gene Miller, industrial relations supervisor, Ardmore; George Higgins, Corporate director industrial security; F. E. Chambers, director industrial relations FW; Pete Read, manager industrial security, Electronics; Noble Moore, manager industrial relations and security, Daingerfield; Coy Crow, chief of guards, FW; Bowling Hitt, security officer FW. Seated, from left: John Iles, manager industrial security, General Atomic; Bob Benton, manager industrial security, Pomona; I. B. Hale, manager industrial security, FW; Dick Jaeger, manager industrial security, Quincy; Stan Sharp, manager industrial security, Convair.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 19, No. 23 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, November 16, 1966

Atlas Perfect In Gemini Launch Role

Convair division's 500th Atlas, SLV-3 No. 5307, turned in a "perfect performance" last Friday when it boosted an Agena target vehicle into space for the 12th and final Gemini mission.

"We were very pleased with the flight," Grant L. Hansen, Convair vice president-launch vehicle programs, said.

"The performance seemed perfect in all regards."

Hansen pointed out that the flight was the 19th consecutive successful Atlas space launch.

"We are very proud of the role the Atlas booster has had in the Gemini program," he said.

"Atlas will still be used for many years for lunar, deep space and earth orbiting satellite missions."

W. J. Hammond, Convair site support group engineer, said marks in the launch countdown were "on the money" with liftoff about one second early.

The Atlas launch was the last scheduled for Complex 14 at Cape Kennedy, the same launch complex from which the first Atlas was launched in 1957.

Cosby Reports On 111's Status

Because of its extreme versatility, the 111 will be able to fulfill virtually any role required for a U.S. fighter-bomber in the foreseeable future.

J. T. Cosby, vice president-111 programs at Fort Worth division, made this observation during a status report on the variable-wing airplane before members of Convair Management Club Nov. 10 in San Diego. He substituted for Frank Davis, Fort Worth president, who was unable to be present.

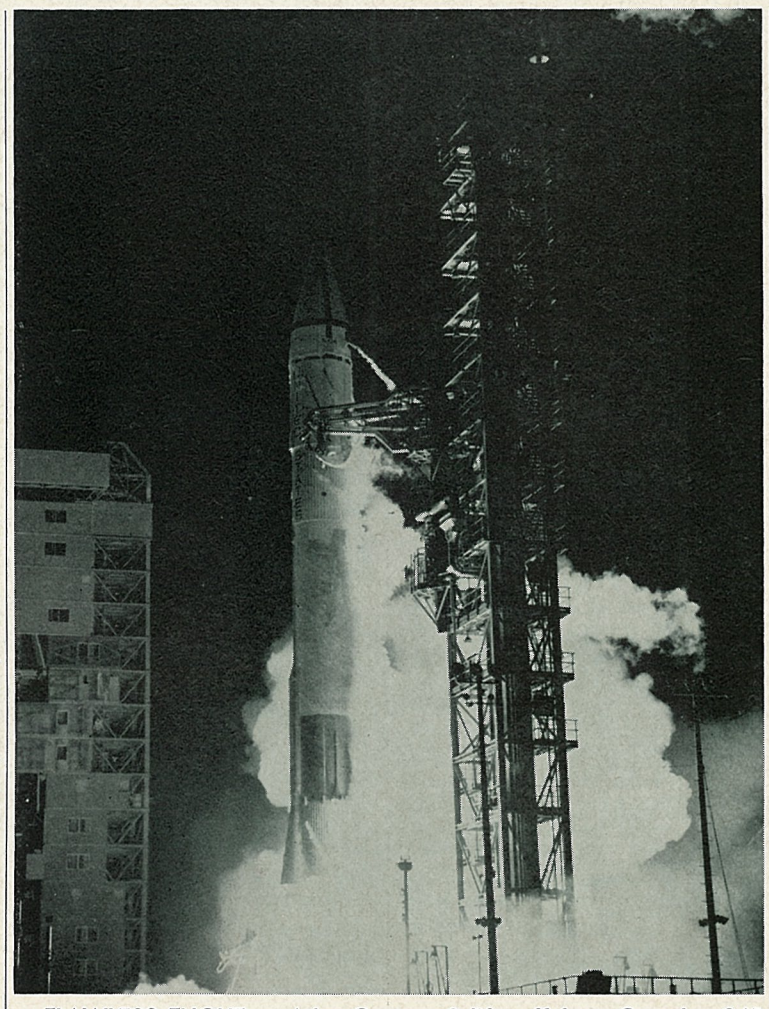
"Once in operational service," Cosby noted, "the 111 will provide added combat efficiency in a wide range of tactical situations.

"The FB-111 — our next round of strategic manned bombers — will provide improved capability to the Strategic Air Command.

"We have learned from Viet Nam and also from Korea, that closely coordinated air and ground forces can nullify a substantial superiority of ground forces alone. The F-111A has a primary role of interdiction, a secondary role of ground support."

Cosby indicated the F-111A

(Continued on Page 2)



FLAWLESS FLIGHT — Atlas-Centaur 9 lifts off from Complex 36B in Oct. 26 flight that proved Centaur's two-burn operational capability for national space programs. Two in-space "burns" of Centaur engines will be used in Surveyor launch missions next year. Congratulations on the successful AC-9 launch came from NASA's Lewis Research Center, noting that this has been a highly successful year for Centaur project.

NASA Project Manager Hails Success of AC-9

Convair division has received the following telegram from Edmund R. Jonash, manager of the Centaur project office at NASA's Lewis Research Center:

"Congratulations on the successful launch of Atlas-Centaur AC-9. With the conclusion of the 1966 launches, I'm sure you must feel as I do that this has been a highly successful year for the project.

"Major milestones achieved include:

1. Powered first Surveyor to a successful soft landing on the moon.

2. Demonstration of two-burn operational capability of Centaur.

3. Demonstration of capability to launch at least four vehicles in one year.

4. Demonstrated launch-on-time capability, capability of rapid recycle of launch attempts and a one-month launch-to-launch span at ETR.

5. Major advancements in propulsion technology — propellant management under zero gravity conditions of space and restart of high-energy stage in space.

"From what we know now, the basic concepts required for successful Atlas-Centaur flights have been proven.

"The job ahead of us is providing the assurance that each vehicle down the line is a true equal to its predecessor. Concentration on quality of parts fabrication both at Convair and at subcontractor plants on control of assembly procedures and on adequacy of factory and ETR checkout procedures will be required.

"Special congratulations and thanks are due the ETR Convair staff for its major contribution to this year's accomplishments."

$225,000 Pledged By Con-Trib-Club

Convair Employes' Con-Trib-Club has pledged $225,000 to United Community Services of San Diego County in equal monthly installments during the next year for use in support of more than 75 UCS-member health, welfare, recreational and youth agencies.

In recent meetings, the Con-Trib-Club committee also allocated $1,000 to the Brevard Hospital Association for use toward purchase of a cobalt treatment unit and $1,000 to the Muscular Dystrophy Association of America in behalf of Convair employes at Cape Kennedy.

Also pledged was $5,000, payable in matching amounts for five years, for the San Diego Symphony Orchestra Association and $2,000 to the San Diego County Chapter of the American National Red Cross for 1,000 Christmas "ditty bags" containing small useful and recreational gifts for servicemen in Viet Nam.

James K. Field, chairman of the Con-Trib committee, said the UCS pledge represents a gift of $25 from each Con-Trib participant.

The club expects to receive an estimated $370,406 in employe contributions during the year.

Ten per cent or an estimated $37,041 will be used to aid employe families in emergency cases and $29,527 as a contingent fund for other commitments.

This will leave an estimated $108,365 for aid for the American Cancer Society, San Diego County Heart Association, March of Dimes and about 75 other health, welfare and youth organizations in San Diego County and other areas where Convair employes live and work.

"We have more than 80 per cent participation now," he said. "But there are still many employes who are not giving their 'fair share' toward support of these community service organizations."

Field said the Con-Trib committee urged employes not now giving through the payroll deduction plan to reconsider. Pledge cards are available from employe services upon request.

Each employe's "fair share" is the equivalent of four minutes

(Continued on Page 2)

Atlas Performs To Perfection In Lunar Role

Convair division's Atlas SLV-3 No. 5802 functioned flawlessly last week in starting Lunar Orbiter 2 on its quarter-million-mile trip from Complex 13 at Cape Kennedy to its orbital path around the moon.

Jim Von der Wische, Convair program manager for NASA SLV-3 programs, said the countdown progressed with "textbook precision" and that "all systems performed perfectly" during the flight.

C. H. Nelson, Lunar Orbiter program manager for NASA's Langley Research Center, asked at a pre-launch briefing that the launch be made as early as possible in the launch window to conserve propellants for use in later vehicle maneuvers.

"We launched in less than 2/10 of a second after the window opened," Von der Wische said.

William Phillipp was launch conductor. Assistant conductors were William Apfel for electrical systems and Glen Baxter for mechanical systems.

The 850-pound Orbiter 2 space-

(Continued on Page 2)

Convair to Assist in Pomona Anti-Radiation Missile Task

Convair division is one of the concerns associated with Pomona division of General Dynamics in development of the air-to-ground anti-radiation missile weapon system, known as ARM, for which Pomona has received a $7.5 million letter contract from Naval Air Systems Command for initial development.

Convair's task on the ARM program consists of design and development of the missile ejection launcher, and modification of aircraft for incorporation of the launch adapter and the target identification and acquisition system (TIAS), as well as aircraft installation of instrumentation equipment necessary to provide data during the flight demonstration program, R. E. Dietz, in charge of Convair's share of the program, explained.

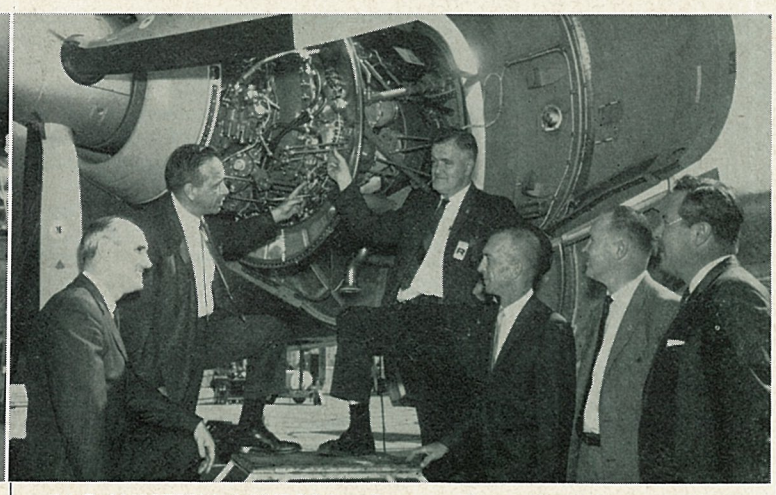
ARM launchers, or adapters, built at Convair are now in checkout. One was successfully operated at Grumman Aircraft Engineering Corp., Long Island, N.Y. Two others have been delivered to the U.S. Naval Missile Center, Point Mugu, Calif., for fit checks. One adapter has been in environmental testing at the Convair Lindbergh Field plant and another was scheduled for completion.

Dietz went on to say that when the actual flight test program gets under way, Convair will maintain aircraft at Lindbergh Field. The division will support the Pomona program with flight test, design, and supporting personnel for the duration of the development program.

Facilities for personnel from the Navy, Air Force, IBM (which is furnishing the TIAS), Grumman, McDonnell Aircraft Corp., as well as Pomona division and Convair, will be maintained at the Lindbergh Field plant in San Diego.



FRENCH VISITORS—Group from Sud Aviation, Toulouse, France, shown in Convair Service Center, look over Convair 640, due to be delivered to Hawaiian Airlines this week. French visitors, in U.S. for training on honeycomb manufacturing and handling, requested review of Convair production techniques. From left are R. M. Spetham of Rohr; Jean Roques, Louis Cofler, Jean Pierson, Gabriel Naudy, Jean Lautrain, all of Sud Aviation; J. G. Roland Collette, Convair engineer who acted as interpreter; J. B. Hurt, Convair 600 program manager; and N.P. Pearson, C-141 empennage production head.



PAC WESTERN VISITORS—Group of Pacific Western Airlines' officials inspect Convair 640 modification and Dart engine at Convair's Lindbergh Field plant during recent visit, late last month. From left are Capt. J. C. S. Miles, PWA vice president of operations; Roy E. Sommers, Convair chief of field service; Tom McLaughlin, PWA chief of inspection; Jack B. Hurt, Convair 600 program manager; Ted Toy, PWA superintendent of communications; and Bernie Muller, PWA superintendent of passenger services. Airline just purchased four 640 kits.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between Nov. 15 and Nov. 30.

Thirty-year: Dept. 015-0, R. W. Huckell; Dept. 053-0, B. F. Ferguson; Dept. 423-0, W. H. Evans.

Twenty-five-year: Dept. 001-0, W. L. Dueber, B. T. Robinson; Dept. 002-0, M. J. McCormick; Dept. 015-0, V. H. Logan; Dept. 031-0, R. J. Larson; Dept. 041-0, H. S. Boyd; Dept. 140-0, L. I. Medlock; Dept. 170-9, J. E. McCann; Dept. 193-3, L. H. Olson, G. B. Steed; Dept. 300-3, J. C. Rodriguez; Dept. 400-2, C. B. Davis; Dept. 511-1, R. J. Loesch; Dept. 566-2, R. D. Chesler; Dept. 731-0, H. A. Ostin; Dept. 835-1, J. F. L'Etourneau; Dept. 955-0, I. U. Eggert Jr.; Dept. 987-0, B. K. Gingery.

Twenty-year: Dept. 015-0, L. E. Worden; Dept. 041-0, C. H. Linn; Dept. 057-0, K. Snyder; Dept. 059-3, E. P. Lawson; Dept. 110-1, C. W. Power; Dept. 125-0, R. L. Plummer; Dept. 170-2, A. Mix; Dept. 250-2, R. F. Bonner; Dept. 250-6, J. Quince Jr.; Dept. 401-6, R. G. Metz; Dept. 566-1, J. E. Humphreys; Dept. 715-0, F. E. Hitchcock; Dept. 835-4, D. J. MacDonald; Dept. 845-2, G. D. Sanders; Dept. 971-5, R. W. Kincaid; Dept. 973-3, E. J. Kulczyk; Dept. 978-3, D. W. Burright; Dept. 987-0, F. J. Mathis.

Fifteen-year: Dept. 024-0, H. L. Brand; Dept. 123-0, F. H. Killough; Dept. 130-1, C. U. Blanchard; Dept. 130-6, S. A. Williamson; Dept. 144-0, R. S. Campbell; Dept. 250-2, M. A. Long; Dept. 250-6, A. Hallcy; Dept. 300-2, R. L. Shrum; Dept. 400-6, J. J. Grimes; Dept. 410-0, J. A. Drazkowski, J. B. Murphy; Dept. 454-0, A. I. Saito; Dept. 543-3, D. E. Hays; Dept. 544-4, J. P. Norvall; Dept. 819-0, S. A. Stowers; Dept. 832-1, M. L. Burkhead; Dept. 833-2, F. A. Norris; Dept. 835-2, F. J. Sabatka; Dept. 848-0, J. E. Neff; Dept. 957-0, C. E. Wheary; Dept. 966-7, H. L. Doughty; Dept. 967-3, N. K. Polakowski; Dept. 973-3, H. M. Romero; Dept. 978-3, C. D. Fitzpatrick, K. L. Pauley, E. G. Pringle; Dept. 985-4, D. F. Rogers; Dept. 987-0, J. A. Wiggins.

Ten-year: Dept. 015-0, R. C. Tileston; Dept. 019-0, W. A. Wachtelborn; Dept. 041-0, B. E. O'Brion; Dept. 050-0, W. R. Bruce; Dept. 058-0, V. O. Weese; Dept. 101-6, P. B. Charles; Dept. 101-7, T. I. Berry; Dept. 130-1, H. A. Schueler; Dept. 142-1, G. E. Davis; Dept. 149-2, V. Moe; Dept. 191-0, A. M. Linville; Dept. 193-2, N. F. Davis; Dept. 194-0, G. J. Gonlag; Dept. 250-1, E. J. Bauer; Dept. 250-2, A. E. Pohlemann; Dept. 250-3, W. R. King, E. P. Snook; Dept. 250-4, M. R. Sandoval; Dept. 250-5, J. R. Schleiger.

Dept. 512-2, A. Fujimoto; Dept. 524-0, P. L. Whaley; Dept. 532-1, R. G. Latimer; Dept. 566-3, K. A. O'Brien; Dept. 574-2, C. A. DeForge; Dept. 574-6, F. W. Wundrow; Dept. 733-0, J. J. Gartland Jr.; Dept. 780-1, J. A. Gilliam, G. B. Jondall; Dept. 780-2, M. C. Frazier, M. M. Soto; Dept. 780-4, L. M. Lavigne; Dept. 833-1, W. O. Bradley, E. Gonzales, L. Rieder; Dept. 833-2, W. F. Cogan, R. A. Lindsay; Dept. 847-1, D. R. Butterfield; Dept. 870-0, V. J. Tarantino.

Dept. 951-7, J. B. Burkmeyer; Dept. 954-1, W. J. Merkel; Dept. 955-0, R. W. Frye; Dept. 957-2, R. A. Goff; Dept. 961-8, E. B. Potter; Dept. 963-9, J. Schauder; Dept. 964-2, W. T. Meier; Dept. 966-9, J. F. Conley; Dept. 984-2, M. Cornwall; Dept. 985-1, D. G. Lyman; Dept. 985-3, G. C. Bates.

ELECTRONICS

Twenty-year: Dept. 40739, G. F. Hogan; Dept. 66831, H. F. Jackson.

Fifteen-year: Dept. 40720, D. A. Bettinger; Dept. 40750, R. L. Helton; Dept. 68530, M. F. Klauk, Dept. 68670, D. M. Dreyer.

Ten-year: Dept. 40720, P. J. LaFleur; Dept. 40730, R. F. Renteria; Dept. 65710, R. L. Reiter; Dept. 66770, J. E. Lundgren; Dept. 68670, G. R. Lynn; Dept. 69880, J. S. Gacho.

The following received service emblems during the month of October:

Fifteen-year: Dept. 68790, M. F. Leeds; Dept. 68821, W. D. Buniger.

Ten-year: Dept. 63760, W. C. Forster; Dept. 68540, B. Y. Tateyama; Dept 68590, R. E. Dodero; Dept. 68790, W. E. Duke.

STROMBERG-CARLSON

Fifteen-year: Dept. 8710, M. L. Eide.

Ten-year: Dept. 8560, N. Waddington; Dept. 8624, T. L. Oakley.

Invention Disclosures

CONVAIR

BLUTINGER—B., Dept. 988-4. Remote Control of Automobile Timing.

CLAY—J. P. and V. L. LINTVEDT, Dept. 584-2. Insulating Spacer for Multilayered Insulation.

DONALDSON—J. D., Dept. 583-1. Automatic Power Increase from Water Methanol System in Case of an Engine Failure.

Personals

CONVAIR

My sincere thanks goes to the Convair people who stopped at the scene of the accident in which I was involved at the Sassafras & Hwy. 101 intersection early on Oct. 29 to assist me and act as witnesses, if necessary. My special thanks to George Shields, Dept. 545-4; Joe Card, Dept. 130-1; Juanita Russell, Dept. 113-0; and Bill Bullock, Dept. 113-0.

Ketha Johnson, Dept. 113-0.

* * *

Your kind expression of sympathy is deeply appreciated and gratefully acknowledged.

The family of John F. Tomaschesk i
(Dept. 958-7)

General Dynamics News

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Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

Papers Presented

CONVAIR

ADSIT—N. R., Dept. 572-1. "Electroforming to Form Composite Materials," ASTM/Symposium on Fiber Strengthen Metallic Composites, Chicago, Ill., Oct. 30-Nov. 4.

KANTOR—M., and R. S. GROTE, Dept. 581-1. "Cost/Effectiveness Comparison of Battlefield Reconnaissance and Surveillance Manned Systems," AIAA/Military Aircraft Systems Meeting, Dallas, Texas, Oct. 18-19.

LANGFORD—G. J., Dept. 491-0. "Plasma Arc Welding of Titanium," American Welding Society's annual fall meeting, St. Louis, Mo., Oct. 3.

MARENHOLTZ—Pete E., Dept. 543-1, "Programmable Solar Array Simulator," IEEE/Aerospace and Electronic Systems Conference, Washington, D.C., Oct. 3-5.

MIYAJI—M. C., Dept. 572-3. "Method and Facility Employed at Convair Division of General Dynamics for Auditing Microscopic Particle Analysis," ASTM/Tech. Symposium, October.

NEYNABER—R. H., Dept. 596-0. "A Merging Beams Experiment," 19th Annual Gaseous Electronics Conference, Georgia Institute of Technology, Oct. 11-15.

SHAFER—W. A., Dept 592-0. "The Systems Approach to the Development of an Artificial Heart," Institute on the Impact of Bio-Medical Instrumentation on Industrial Management, Washington, D.C., Oct. 16-19.

WOLF—R. L., Dept. 592-0. "Space Suit Modifications for Weightlessness Simulation by Water Immersion," Space and Flight Equipment Association's Fourth Symposium, San Diego, Oct. 4.

Papers presented at SAE's National Aeronautic and Space Engineering Meeting, Los Angeles, Oct. 3-7.

A. H. HAUSRATH and J. F. FISCHER, Dept. 587-3. "Structural Considerations in the Design of a Liquid Hydrogen Tank for Hypersonic Vehicles"; S. H. MYHRE and D. J. PEERY, Dept. 587-0. "Pre-Stressed Jettisonable Structure for Advance Upper Stages"; R. E. MARTIN and B. BLUTINGER, Dept. 988-4. "Event Monitoring with Time-Shared Computer Controlled Checkout System"; G. J. LANGFORD, Dept. 491-0. "Plasma Arc Welding for Aerospace Technology"; D. R. ARCHIBALD, Dept. 143-0 "Maximum System Effectiveness or Worth for Specified Cost." J. H. RUSK Jr., Dept. 958-4. "Space Vehicle and Ground Systems Reliability."

Papers presented at NASA's MSFC/Conference on Long-Term Cryo-Propellant Storage in Space, Huntsville, Ala., Oct. 11-15:

A. B. WALBURN, Dept. 584-2. "A Thermodynamic Model for Orbital Cryogenic Propellant Tanks with P-T Correlations for S-IV and Centaur Flights"; J. A. STARK, Dept. 584-0. "Study of Zero-gravity Vapor/Liquid Separators."

Papers presented at American Chemical Society/Symposium on Chemical Engineering in Medicine and Biology, Cincinnati, Ohio, Oct. 20-21:

W. A. JOHNSON, Dept. 592-0. "The Role of Chemical Synthesis in Advanced Life Support System Development"; J. C. BALLINGER, Dept. 592-0. "The Feasibility of Cryogenic Freeze-Out for Control of Atmospheric Trace Contaminants in Manned Spacecraft."

Papers presented at Instrument Society of America's 21st annual conference, New York, Oct. 24-27:

D. W. MOFFAT, Dept. 542-0. "Measurement and Analyses of Electromagnetic Compatibility"; D. K. NEFF, Dept. 578-4. "Pre-launch Measurement of Loads on the Centaur Insulation Panels"; L. W. DUNCAN, H. H. TRACY, Dept. 541-0. "Aerospace Application of Microwave Swept Frequency Measurement Techniques"; D. J. FERRIS, Dept. 578-0. "A Flight Strain Gage for a Liquid Hydrogen Tank Skin"; L. P SILVERNALE, Dept. 967-3. "Discrete Analysis—A Heuristic Approach."

Papers presented at International Astronautical Congress, Madrid, Spain, Oct. 10-15:

J. ROSCISZEWSKI, Dept. 596-0. "Efficiencies of Plasma Propulsion Devices"; R. C. ARMSTRONG and C. D. KING, Dept. 592-0. "Life Support Systems on the Moon."

Papers presented at Optical Society of America's 1966 annual meeting, San Francisco, Calif., Oct. 19-22:

W. MALKMUS, Dept. 596-0. "Random Band Models with Lines of Pure Doppler Shape"; C. B. LUDWIG and C. C. FERRISO, Dept. 596-0. "Reduction of Total Emissivity of Hot Water Vapor."

Retirements

CONVAIR

BIDWELL—George R., Dept. 523-6. Seniority date July 27, 1954, retired Oct. 1.

DUNN — Thomas J., Dept. 400-5. Seniority date March 5, 1948, retired Sept. 23.

DYE — Howard W., Dept. 964-4. Seniority date July 11, 1960, retired April 16.

HAXBY — Louanne, Dept. 016-0. Seniority date May 29, 1956, retired July 16.

JOHNSON — Osborn H., Dept. 300-3. Seniority date Feb. 15, 1956, retired Oct. 4.

MOON — N. B., Dept. 756-0. Seniority date July 23, 1956, retired Oct. 9.

PAYNE — Henry B., Dept. 250-2. Seniority date Aug. 2, 1956, retired Aug. 22.

PICARD — Arline F., Dept. 141-3. Seniority date June 13, 1961, retired Oct. 3.

STEEL — Charles L., Dept. 420-4. Seniority date Sept. 22, 1947, retired Oct. 15.

WAGNER — John E., Dept. 454-0. Seniority date June 8, 1943, retired March 8.

WARD — Albert E., Dept 250-1. Seniority date Oct. 26, 1948, retired Oct. 7.

Deaths

CONVAIR

MORROW — John H., Dept. 587-1. Died suddenly Nov. 4 in San Antonio, Texas. Survivors include his wife, Lucille; three sons, William, Daniel, and Raymond; a daughter, Mary; parents, two sisters, and a brother.

VICKER — Max, Dept. 816-4. Died Nov. 2. Survived by wife, Sylvia G.; and two sons, Michael and Bruce.

ELECTRONICS-SD

SINCLAIR — Kent, manager of quality control. Died Oct. 28. Survivors include wife, Ruth; a daughter, Grace; two sons, Kent Jr., and Keith; father, John A. Sinclair; and an aunt, Mary Sinclair.

Awards

CONVAIR

Employe Suggestion awards approved for the week ending Oct. 21.

Dept. 016, O. B. Carrera, W. J. Gibson, B. M. Swanson; Dept. 019, G. G. Grantham; Dept. 024, M. E. Colvin; Dept. 041, R. M. Crise; Dept. 059, C. E. Keptner; Dept. 100, P. L. Heincy; Dept. 124, M. S. Doten; Dept. 141, W. M. Morgan; Dept. 143, J. W. Pullis; Dept. 149, G. F. Wilson; Dept. 420, L. W. Raper; Dept. 454, R. A. Cook, A. R. Flores; Dept. 543, H. E. Seibert; Dept. 578, R. Chavez; Dept. 715, C. E. Schultz; Dept. 758, O. A. Smith; Dept. 759, C. Denardo, G. D. Lundquist; Dept. 780, J. D. Roper; Dept. 818, M. L. Staples; Dept. 845, S. P. Tessin; Dept. 957, J. A. Madden; Dept. 964, D. A. MacGregor; Dept. 972, R. L. Robinson; Dept. 985, R. L. Westfall; Dept. 987, D. D. Arce (two awards), J. W. Magnuson, C. E. Roach Jr. (two awards).

Employe Suggestion awards approved for the week ending Oct. 28.

Dept. 016, A. C. Lemire, M. G. Mercer, B. H. Nichols; Dept. 019, P. Lo Coco, R. Lucero; Dept. 031, E. M. Moore; Dept. 041, J. T. Hobbs Jr.; Dept. 059, R. H. Feeley; Dept. 123, A. J. Nybo; Dept. 125, J. S. Gavett; Dept. 140, K. E. Canaan; Dept. 141, J L. Eiland, R. Hughes, H. Warner; Dept. 144, G. T. Lizon; Dept. 146, G. C. Eggen; Dept. 401, A. C. Garegnani; Dept. 780, F. E. Aguilar; Dept. 833, B. J. Bakkedahl; Dept. 847, M. F. Gonzales and M. D. Hammersley (joint award); Dept. 979, B. R. Goode, R. W. Suess (two awards), D. F. Waring Jr.

In-Plant Training

ORIENTATION

NEW EMPLOYES—Educational services staff. Lindbergh Field, ext. 491. Bldg. 14 auditorium, Tuesday, Nov. 29, 8 a.m.; Dec. 7, 4:30 p.m. Kearny Mesa, ext. 1931, Bldg. 17, Room 7, every Monday, 8 a.m.

PROFESSIONAL/TECHNICAL

RELIABLE ELECTRICAL CONNECTIONS — Educational services staff. For further information and quota call ext. 1931, Kearny Mesa.

VALUE ENGINEERING WORKSHOP — Everett Lindem, Lindbergh Field plant, Bldg. 4. Nov. 28-Dec. 9, 8 a.m. to noon, 40 hours. Students assigned by supervision.

PROGRAMMED SELF-STUDY — A limited number of programmed texts covering many subjects are available in the educational services office, Bldg. 17. These may be checked out for home study. Office hours are 8 a.m. to 5 p.m. Kearny Mesa, ext. 1931.

Atlas Performs To Perfection

(Continued from Page 1)

craft, fired into its lunar trajectory by an Agena second stage, "locked on" to the star Canopus for navigation aid and coasted through space until its engine fired it into a wide orbit around the moon.

The spacecraft's camera system is scheduled to take more than 250 photographs of possible Apollo astronaut landing sites near the lunar equator.

Areas to be photographed include a section of the Sea of Tranquility where the Ranger 8 spacecraft impacted Feb. 20, 1965.

Andrew Kalitinsky, Convair assistant program director-launch vehicle engineering, and Richard W. Keehn, Atlas SLV program manager, were at the Cape with Von der Wische for the launch.

Convair division had a "tiger team" at the Cape Oct. 25-27 for a comprehensive review of the Atlas and a vehicle equipment assessment presentation. James Ball was team captain with Stanley Sieler responsible for reliability, J. A. "Red" Eaton for configuration management and Joseph Spieker for quality control.

Engineering department personnel on the team and their areas of responsibility were William Evans, propellant control; Charles Oliver, propulsion; H. E. LaNois, pneumatics; A. G. Haury, hydraulics; Howard Newcomb, electrical; Robert Packer, instrumentation; Harry Harper, flight control, and Samuel Merkowitz, structures.

Dale Nash to Talk For IEEE Section

Dale Nash, a Convair division failure analysis group engineer, will speak on "Failure Analysis in Modern Industry" at the November meeting of the reliability group of the Institute of Electrical and Electronic Engineers, San Diego section.

The meeting will be at 8 p.m. Monday (Nov. 21) at Reliability Research and Technology, Inc., 1667 Rosecrans St. For further information, phone Robert Patti, Stromberg-Carlson ext. 339.



ELECTRONICS WINNER—Jack Skimin (right), supervisor of REINS assembly in Electronics-SD operations, accepts cigars and candy from General Manager Don C. Prim at Zero Defects award presentation late last month. REINS assembly was top group for quarter in error-free work.

Cigars and Candy Accompany ZD Win at Electronics-SD

REINS assembly topped all Electronics-SD functions to win Electronics-SD's Zero Defects award for the third quarter of the year, ending Oct. 1.

Don C. Prim, Electronics-SD general manager, in presenting the banner to the group, praised the performance of the men and women who perform modification, repair, and spares production assembly work on the REINS radar system.

Prim pointed out that improvement in defect-free work in REINS assembly over the last four months was "really outstanding, considering the varying levels of quality expected in the wide range of tasks—from repair through modification and new spares production."

Jack Skimin, REINS assembly supervisor, accepted boxes of candy and cigars to pass out to the group, presently numbering about 30 men and women.

Electronics-SD has been building advanced radar systems for REINS (Radar-Equipped Inertial Navigation System) for over six years. The radar was originally developed at Electronics-SD and is being fabricated under contracts from North American Aviation's Autonetics Division. The radar is a major sub-system of the navigation and bombing system installed in the Navy's A5D Vigilante attack bomber, now in action in the Viet Nam war theater.

$225,000 Is Pledged As Con-Trib Gift

(Continued from Page 1)

work per day or 8/10 of 1 per cent of pay. Lesser amounts may be given, however.

"When we give through Con-Trib-Club we are giving 'once for all,'" Field said. "No other solicitations are allowed in the plant."

Cosby Tells Club 111 Program Status

(Continued from Page 1)

would be able to drop bombs with a high degree of accuracy under adverse conditions. Not uncommonly, for example, pilots in Viet Nam must make strikes when both ceiling and visibility are quite limited and enemy ground fire is heavy, he said.

Since many strikes in Viet Nam are made from carriers, the F-111B — Navy version — would become a "vital cog," he noted. "And if the carriers were opposed by enemy air power, the F-111B would have even more utility."

Quite often in Viet Nam, Cosby noted, pilots have "no target data." "In these situations," he said, "the 111's high-resolution attack radar, especially in the reconnaissance version, can be of great value."

In air-to-air combat, the F-111, equipped with soon-to-be installed Mark II avionics systems, will be more effective than any contemporary fighter-bomber, Cosby asserted.

He said the Navy F-111B, equipped with Phoenix missile systems, would literally be unsurpassed in air superiority and interceptor roles.

"The avionics systems have demonstrated again and again that they are more reliable than any previous systems at this stage," he said. "They are outstanding. For example, the navigation system has repeatedly demonstrated that its accuracy is about twice as good as required by our specifications. The terrain-following radar system . . . has also proven its reliability."

"When you consider that the 111 is actually the only machine of its type in our country's projected arsenal," Cosby concluded, "you realize then how important it is and how important our own work at General Dynamics is to our country."

SCIENTISTS SLATED FOR TV APPEARANCE

Two General Dynamics scientists will be featured on 15-minute "Meet the Scientists" programs to be telecast Friday (Nov. 18) on San Diego and Los Angeles area TV stations.

Dr. John P. McCann, chief of Convair division life sciences department's aerospace medicine group, will discuss present and future challenges in aerospace medicine and the inter-relationship between various fields of science.

Dr. George W. Hinman, chairman of General Atomic division's experimental physics department, will discuss new challenges in the physical sciences.

The telecasts coincide with the California Industry-Education Council's fifth annual "Teacher for a Day" program in which businessmen become high school science teachers for one day while regular teachers spend the day with business or industrial firms.

Dr. McCann's presentation opens with a demonstration of remote field effect monitoring of the heart of a member of Convair's crew performance laboratory, while he wears a full-pressure space suit.

The remote monitoring device was developed by Dr. William A. Shafer, Convair aerospace medicine specialist.

Dr. Hinman discusses the search for fundamental particles and kinds of forces that are the ultimate "building blocks" of nature.

"This is the field of science that requires big machines, big teams of researchers and big budgets," he said.

Sailing by Computer

Precise Steering System Designed For Keeping Moon Ships on Course

A woman senior research engineer from Electronics division's San Diego operations has been using an analog computer at Convair division's Kearny Mesa plant at San Diego in designing a system for steering three large Apollo tracking ships down precise "tracks" in the Atlantic, Pacific and Indian Oceans.

NASA has designated the system as the Ship Track Indicator System.

The engineer, Mrs. Theresa Vasques, has used information from actual sea tests of the Apollo Instrumentation Ship, USNS Vanguard, in planning design of a "black box" (servo system) to work in conjunction with the ship's autopilot for precisely steering along specified "tracks" on the ocean bottom. The servo system will also provide signals to an indicator so that the helmsman can steer the ship precisely.

Servo systems for the other ships, USNS Redstone and USNS Mercury, will incorporate changes reflecting their steering "peculiarities."

The ships are 595 feet long and 75 feet wide. Goal is to steer with such accuracy that they always will be within 75 feet of the center of the desired "track" over the ocean floor.

Rudder turn rates fed into the computer for the study took into account, for example, that Vanguard while traveling at six knots takes 26 seconds to begin to respond to a 5 degree rudder change.

Compensation also must be made for effect of ocean currents and winds.

Purpose of steering an Apollo ship along prescribed bottom "tracks" is to enable it to make accurate topographic maps of selected areas of the ocean bottom by precise depth soundings. These maps will allow the ships to locate their positions with sufficient accuracy for satellite tracking at times when stellar observations are not possible.

Aiding each of the three ships in maintaining precise course will be several sonar transponders on the ocean floor. Time for return of signals from the transponders will enable computers on each ship to determine the ship's position.

Due to the relatively slow speed of sound in water, position fixes may not be possible more frequently than every 18 seconds. Furthermore, position "fixes" with respect to the sonar transponders will have random errors. These factors were included in the simulations.

Both automatic and manual steering systems have been used in the analog computer simulations.

For manual steering, a ship's "wheel" made from a 16-mm motion picture reel was tied to the computer system and required rudder lead time was incorporated into a "rudder error" indicator and "perpendicular distance to track" meter.

"While the film reel wheel may look like a 'gimmick,' it really isn't," Mrs. Vasques pointed out. "It's about the same size and has about the same feel as wheels on the ships. One full turn of the wheel provides eight degrees of rudder change and you can spin this wheel just as you could those on ships."

Irving Litchfield, an Electronics-SD engineering writer, who formerly served as a Merchant Marine first mate, used the wheel in steering the "Vanguard" in the computer tests and was able to keep the "ship" within 60 feet of the "track" center.

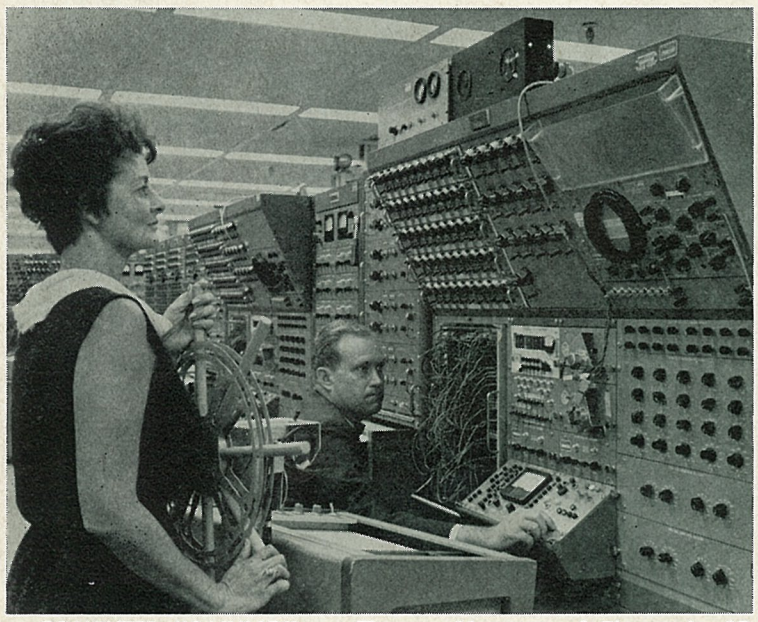
Computer printouts of his "runs" have been sent to NASA's Goddard Space Flight Center in Greenbelt, Md., for analysis.

John Alvey and Jack McKenna of NASA - Goddard program office are in charge of procurement of the Ship Track Indicator System. Dr. D. M. Hill is project leader for Electronics-SD. John Manelis contributed to accuracy studies. Lou DeBeer, Gerald Lock, Irving Williams of AIS Program Office, Quincy, Mass., Ervin Campbell and Vic Salgado designed hardware. Computer programs are being designed by Maurice Bandy and programmed by John Burke of Convair.

Mrs. Vasques and Ellsworth O. Snyder, an Electronics-SD design specialist, are working together on the servo loop design effort.

George Cooper, Convair research engineer, designed special circuits for the computer simulation. S. O. Atwood, senior electronics engineer and Robert G. Wright, analog computer technician, both of Convair, devised the film reel wheel and the "rudder error" indicator and "perpendicular distance to track" meter used.

Mrs. Vasques spent 10 years with Convair before joining Electronics-SD two years ago. She has previously worked on computer simulations of aircraft, boats and space vehicle systems.



COMPUTER "SAILING" — Theresa Vasques of Electronics-SD takes "helm" for simulated steering of Apollo Instrumentation Ship along ocean "track." Operating computer is George Cooper, Convair division research engineer.

Chief of Space Medicine Heard at World Meeting

Results of extensive crew performance studies in Convair division's revolving space station simulator were outlined by Dr. Bernard D. Newsom, chief of aerospace medicine, at a recent seven-day meeting of the 15th International Congress of Aviation and Space Medicine in Prague, Czechoslovakia.

James F. Brady, a life sciences research engineer in Dept. 592-0, was co-author of the paper presented by Newsom on "Orientation and Habituation in a Manned Revolving Space Station Simulator."

Studies in the revolving simulator have repeatedly demonstrated surprising ability of test subjects to quickly regain pre-rotation performance levels.

The studies also indicate test subjects can adapt themselves for performance of "motor coordination" tests much earlier than the body's gastro-intestinal responses adapt to the change in environment.

Spinning of future space stations would create artificial gravity to aid in support of astronauts aboard and also facilitate procedures such as water separation, waste collection and general sanitation.

Studies described in the paper have been performed at rotation rates ranging from 5 to 12.2 revolutions per minute with subjects performing arithmetic steadiness, button pressing, manual tracking of a spinning bullseye and other performance tests. Several of the tests were performed by test subjects during five days of continuous rotation.

The 14 by 7 by 8-foot space station simulator room revolves around an axis about 20 feet from the center of the room. The room was tilted to maintain force perpendicular to the floor.

Loss of appetite and nausea were found during the first few hours of rotation during several of the tests with more than two days required for return to complete physical "well being."

More than 1,500 space scientists from around the world attended the meeting and as Newsom spoke, simultaneous translations were given in French, German, Russian and Czech.

Newsom also attended meetings of the Atomic Scientists Congress in Vienna and the World Astronautics Congress in Madrid before returning to San Diego.

People Mobility

Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

FREDRICK W. MATSON (1953) from Pomona division to Convair division as product control project analyst; **JAMES E. COXEY** (1958) from Electronics, San Diego to design specialist, Convair; **LEONARD J. NETZEL** (1962) from Pomona to General Atomic as staff associate; **LOUIS B. WISSLER** (1958) from Convair to General Atomic; **PAUL W. WIEDENMANN** (1964) from Convair to Corporate Headquarters as manager of consolidation accounting; **FRIEDRICH S. FREUDIGER** (1961) from General Atomic to senior aerodynamics engineer, Convair; **ERNEST W. GILDERSLEEVE** (1956) from Pomona to material liaison man, Convair; **KENNETH L. GILLEM** (1948) from Stromberg-Carlson, Rochester to manufacturing engineering, Electronics, Rochester; **JOSEPH E. SKILL** (1965) from Electronics, Rochester to Quincy; **JOHN E. SLEAN** (1950) from Convair to quality control engineering, Electronics, San Diego; **PHILIP F. STONE JR.** (1963) from Convair to Electric Boat; **JACK W. GOLLAHER** (1958) from Convair to Stromberg-Carlson, Ardmore.





REDEYE ON DESERT — In top photo, drone, used as target for Redeye missiles at Twentynine Palms Marine Corps Base, Calif., serves as backdrop for Max Golden, General Dynamics vice president (seated), as he discusses firings with Lt. Col. D. E. Erway, commanding officer Marine Air Reserve Missile Training Detachment (left), and K. D. Waltman, Pomona division representative at base. Shoulder-fired Redeye is Pomona division product. In lower photo, Sharon Paine and Cheryl Duke, both Pomona division Dept. 4, get lesson on use of Redeye trainer from Capt. J. W. Spivey (left), and Lt. Col. Erway. Nearly 200 had chance to view firings in third division-sponsored trip for Pomona employes.

20,208 New Purchasers Of U.S. Bonds Added

General Dynamics' recent U.S. Savings Bonds campaign added a record 20,208 new purchasers of bonds by regular payroll deduction.

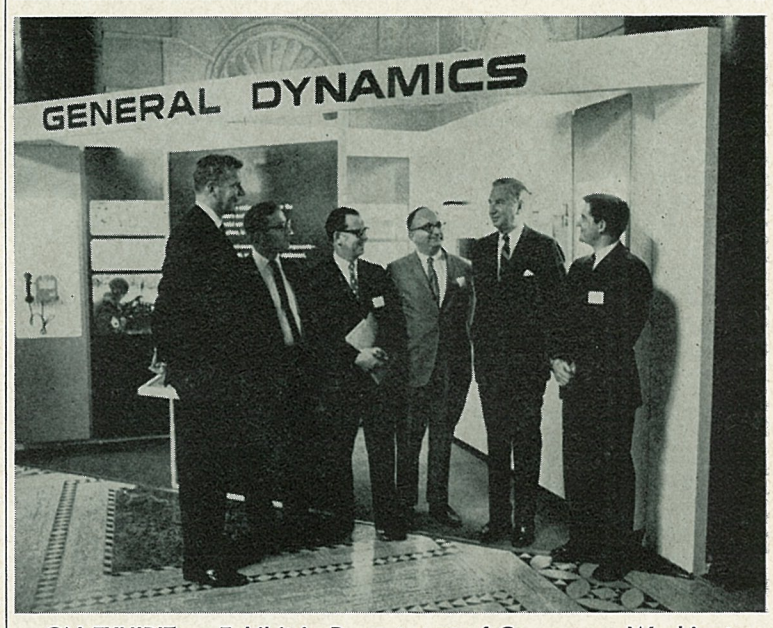
This brings to 50,445 the Corporate-wide total of buyers.

Electro Dynamic division at Avenel, N.J., leads the entire Corporation in participation with 90 per cent, followed by Corporate Headquarters at 87 per cent.

Other leaders include Electric Boat at 77 per cent with Liquid Carbonic division at 76 per cent.

Convair's participation is 71 per cent, Fort Worth division's 66 per cent, Pomona division's 62 per cent, Stromberg-Carlson, 54 per cent and Quincy division 52 per cent.

General Dynamics' overall percentage of savings bond buying is 63 per cent.



ON EXHIBIT — Exhibit in Department of Commerce, Washington, D.C., recently featured General Dynamics products, including Electronics division single sideband radio and Stromberg-Carlson sound-powered telephone. From left: Edward J. Brenner, U.S. commissioner of patents; Dr. Julius Rabin, patent attorney; Carter W. Eltzroth, Stromberg-Carlson counsel; Martin Lukacher, Electronics division patent attorney; Secretary of Commerce John T. Connor; James W. DeSimone, General Dynamics patent counsel.

100,000 View General Dynamics Patent Exhibit in Washington

A General Dynamics exhibit which was a highlight of a recent U. S. Department of Commerce patent display in Washington, D.C., is now on a Corporation-wide tour.

First stop for the exhibit, which includes nine patents originated and used by GD in recent years, is Electro Dynamic division, Avenel, N. J. Later it will be displayed at other divisions.

More than 100,000 persons visited the "Progress of Industry Through Patents" show in the nation's capital. GD's exhibit, one of 14 prepared by major industrial concerns, features models or photographs of a sound-powered telephone, single sideband radio, automatic gage control system, slotted blade vaneaxial fan, conic ring seal, leading edge high lift slats for aircraft, a binocular communicator, and Dynapak and Magneform metalforming machines.

Big Savings Anticipated From 24 Projects

L. I. Medlock, director of reliability control, last week presented commendation certificates to 18 reliability control personnel for 24 cost reduction and value control projects expected to save Convair division $557,383 a year.

Eric Callard, reliability control cost reduction program administrator, said the cost reduction goal for the quarter was increased from $186,500 to $426,000 in June. Actual savings was $131,383 higher than the revised goal.

Reliability control's goal for the current quarter-year is $426,000 and a million dollar savings goal has been established for next year.

High man in savings for reliability control departments during the third quarter was Richard S. Campbell, manager of procurement quality assurance, with three cost reduction proposals totaling $167,446 in savings.

One of Campbell's proposals resulted in establishment of new intervals for recalibration of 3,285 pieces of test equipment for a saving of $98,407 a year.

Another, altering procedures for production planning verification, saves $53,139, and the third, under which electronic parts are received in individual packages identified by Convair part number instead of in bulk, will save $15,900.

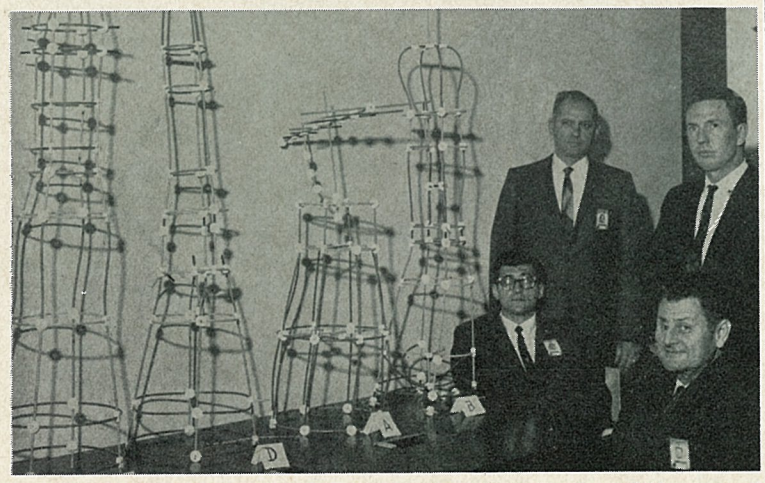
Others with approved cost reduction and value control projects and amount of audited savings are:

J. F. Baebler, $81,220; William Olson, $65,835; Sam Braun, $54,936; C. J. Shaw, $30,604; Arthur Koenig, $16,050; D. E. Burgess, $16,050; J. D. Stevens, $15,191, and Sam Petcher, $11,055.

R. W. Lessard, $10,700; W. G. Lux, $10,685; L. I. Fredrickson, $10,675; R. K. Schmidt, $10,675; B. A. Buffat, $9,075; Sam Engelman, $8,860; V. M. Sardo, $7,316; G. A. Morris, $7,106, and G. M. Pearce, $4,964.



COST REDUCER — L. I. Medlock, left, Convair division director of reliability control, presents three certificates of commendation to R. S. Campbell, manager of procurement quality assurance, for cost reduction projects expected to save $167,446.



"PRODUCT" DISPLAY—Students who played roles of "company general managers" in "Principles of Managing" course organization and communications exercises, are shown with "things" created. From left, Michael Hersh, Douglas Du Brul, Louis Green and Richard McGuire, all of Convair.

'Tinker Toy' Exercise Draws On Skills of Management

Students in a 10-week Convair Management Club - sponsored "Principles of Managing" course at Kearny Mesa recently were organized into four different "companies" and given 105 minutes in the Oct. 27 class period to see which could create the best "thing" from plastic tinker toys.

Each of the seven-member companies was organized differently and used its own "communications channels" in planning and building its "contract definition phase prototype model."

Five other members of the class served as "source selection board."

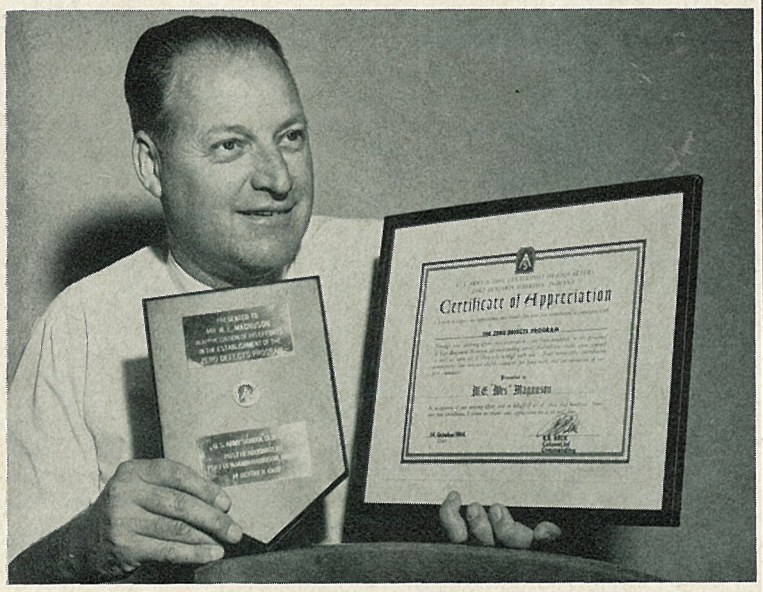
Each "thing" had to have two stages and was to be tall, sturdy and attractive. Each stage had to be transportable over 20 feet to a "mating area." Other "objectives" included meeting the time schedule and maximum utilization of available materials.

Competing as "general managers" of different "companies" were Richard McGuire, Michael Hersh, Douglas Du Brul and Louis Green.

William F. Chana, chief of proposal development for Convair and instructor for the class, said the tinker toy exercise was helpful in stressing importance of technical competence, reliability, logistics, cost effectiveness and time scheduling.

NEWS EDITORS TOUR CONVAIR

About 100 newspaper managing editors attending an Associated Press annual meeting in Coronado were guests of Convair division yesterday for a tour of Atlas and Centaur final assembly areas at the Kearny Mesa factory.



ARMY AWARDS—W. E. Magnuson, chairman of Convair division's "Do Good Work" program, displays plaque and certificate of appreciation presented to him by U.S. Army School Center and Post Headquarters at Fort Benjamin Harrison in Indianapolis, Ind. Magnuson was key speaker on Zero Defects program.

Ken Newton Given Wide 'Distribution'

Kenneth E. Newton, manager of Convair's Eastern Test Range operations and president of the Brevard County United Fund (BCUF) campaign, recently has been "seen" at almost every home and business establishment in the Florida county.

A photograph of Newton and Frank W. Vaughn, BCUF drive chairman, and a story on the United Fund drive were featured in the October issue of Bell Tel News, which was distributed with all phone bills by the Southern Bell Telephone and Telegraph Co.

Engineering Society Convenes on Coast

A General Dynamics Corporation display highlighted the F-111 at last week's 10th National Symposium and Exhibit of the Society of Aerospace Material and Process Engineers hosted by the San Diego Chapter at El Cortez Hotel, San Diego.

More than 1,000 materials specialists from all over the United States attended. George Peterson, Air Force Materials Laboratory, Dayton, O., was keynoter of the three-day conference on "Advanced Fibrous Reinforced Composites."

Convair people active in arrangements included Abe Hurlich, registration chairman; H. H. Rosenbaum, social chairman; Jules Hertz, symposium committee secretary; Jean Pochel, and Harry Stone.

Materials, Process Section Described

Organization and responsibilities of Convair's materials and processes section were outlined in an article authored by Abraham Hurlich, manager of materials and processes, and carried in the October issue of Metal Progress, publication of the American Society for Metals.

Under the title, "Designers Rely on Specialists for New Materials Know-How," Hurlich summarizes the functional responsibilities and operations of the four groups within the section: materials research, process development, materials and processes test services, materials and processes specification.

Joe Bowers Named Booster-of-Month

Joseph M. Bowers, Dept. 140-1, won Booster-of-the-Month award for October for stimulating attendance at Convair Management Club meeting and signing new members.

Award was presented at the Nov. 10 meeting.

Bowers, department assistant for administration in reliability control, has been with Convair over five years and served as a Booster the last two years.

You can buy U. S. Savings Bonds regularly for as little as 50 cents a week.

Stromberg-Carlson Offers New Family of Equipment

Stromberg-Carlson Data Products division has introduced a new system of compatible equipment, called Micromation Technology, for converting computer data into readable form, according to an announcement by Carl V. Shannon, Data Products general manager.

The system consists of an entire family of equipment that operates at computer speeds to record output in alphanumeric or in graphic form, coupled with necessary ancillary equipment to provide effective use of the recorded output.

Announcement of the integrated system of 18 different pieces of equipment was made at the Fall Joint Computer Conference in San Francisco early last week.

"In a sense we are helping to create a whole new technology by introducing a new family of equipment encompassing the spectrum of machines required for a Micromation System," Shannon said. "With the new technology, data users now have a practical way of achieving fast turn-around time at low cost in complex information management problems."

Key elements are four new Micromation recorders from Stromberg-Carlson. Each recorder takes digital codes from a computer or magnetic tape and translates the codes into ordinary language or graphic form at tape speeds.

The information is presented on a special cathode ray tube where cameras automatically record it. Data may be recorded on special computerized microfilm for 16mm roll cartridges or 35mm aperture cards. An optional microfiche camera will be available in the system to automatically produce titled microfiche records.

With the new technology, data can be taken from computer or tape and text or graphic records delivered at rates up to 70,000 pages in eight hours.

Howard Jacobs, Data Products marketing director, said, "The long-range implications of the new technology are significant. By streamlining the means of getting computer information into readable form, we provide management with data 'on time' at a practical cost."

Oklahoma U. Awards Degrees In Remote Self-Study Plan

Ben A. Penners, an electronics design group engineer in Convair Dept. 553-2, has become the first Convair employe and first person in the San Diego area to complete requirements for a bachelor of liberal studies (BLS) degree under a unique new guided self-study program offered by the University of Oklahoma's College of Continuing Education.

Roy A. Haubert, an electronics systems specialist in Dept. 550-0, is nearing completion of studies for the degree and Edward W. Carlson, an electronics group engineer in Dept. 553-3, recently took a nine-hour battery of timed tests for entering the program.

Jack A. Croft, Convair chief of educational services, said the BLS program is the only one of its kind in the country and is designed to give highly motivated employes in technical positions broad knowledge of the humanities, social and natural sciences.

The initial battery of tests, conducted by educational services, gives the university a profile of the individual's knowledge and are used to establish his curriculum for 2½ to 4 years of study leading to the degree.

University professors from each of the three major study areas serve as guidance counselors for each student. Textbooks are provided by the university and each student sets his own "pace" for completion of work.

During the entire program, students are required to spend a total of only 13 weeks on the campus for attendance at seminars during summer months. This includes three weeks after completion of each of the area studies and four weeks for an intensive final inter-area study and research paper presentation.

Total cost varies but is about $1,500 and the program is approved by Convair division for tuition refund ($225 per calendar year). Vacation time and, if needed, educational leave without pay can be arranged for attendance of the seminars.

About 1,000 students are currently enrolled in the degree program, including a number of overseas military officers and civilian government employes.

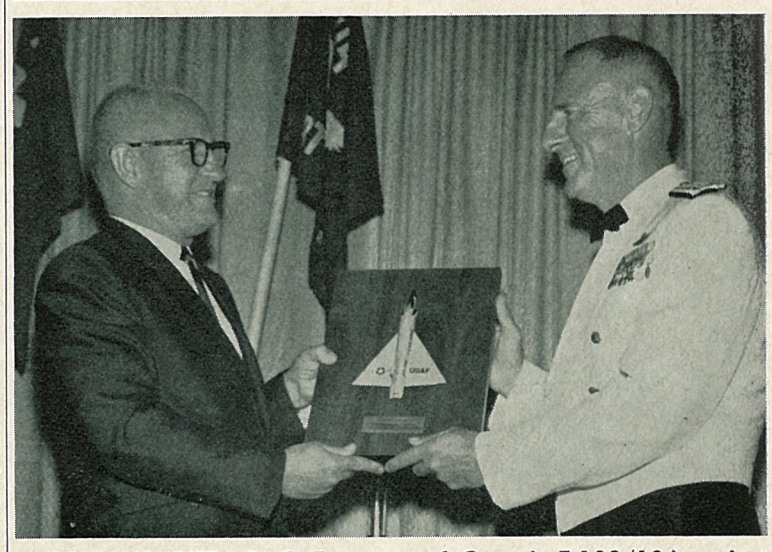
Graduates of the program have scored considerably higher on the Princeton University - graded Graduate Record Examination than graduating seniors in traditional college residence programs.

Penners said he has spent about 20 hours a week for the past three years and studied 73 textbooks.

"I couldn't be more sold on it," he commented. "It has opened up a whole new world. My knowledge and interest in art, literature, philosophy, government, foreign affairs, economics — and even geology — have all changed completely as a result."

Reproduction Chief Chairs Conference

H. B. Day, chief of graphic reproduction at Convair, was general chairman of technical sessions at the 1966 International Visual Communications Congress held Nov. 5-8 at the Great Western Exhibit Center in Los Angeles. The annual conference is sponsored by the Society of Reproduction Engineers in which Day serves as chairman of the San Diego chapter.



CONVAIR GIFT—B. F. Ferguson of Convair F-102/106 project office, left, hands Maj. Gen. D. L. Corning, South Dakota adjutant general, model of F-102 on state's Air National Guard's 20th anniversary recently. Ferguson also gave Convair-furnished models to 18 charter members still active in ANG. The unit flies F-102s.

Craftsmanship Award Made by General Exon

Brig. Gen. Arthur E. Exon, commander of the Los Angeles Region, Defense Contract Administration Services, early this month presented Convair division's Craftsmanship award for September to Dept. 454 at Kearny Mesa.

General Exon was at Kearny Mesa for a meeting with Col. James R. Ourand, DCAS plant representative, and staff. The Craftsmanship win was the fourth for Dept. 454 — the plastics, plaster, foundry and wood shops in Bldg. 27.

"This is not only for you to see, but for every visitor to your department to see," the general said as he presented the gold Craftsmanship seal to W. R. Walker, supervisor, for the department.

He then pinned on Walker a silver Craftsmanship lapel pin with the number "4" engraved on it. Each employe in the department received one of the pins after the ceremony.

General Exon said the customer appreciates work being done right the first time.

"When you do this, you are helping your company in more ways than you know," he said. "It does your department good and it does you good as an individual worker," he added.

Jack L. Bowers, Convair division general manager, introduced General Exon and Colonel Ourand and commended employes in the department for reducing defects from .14 to .04 for each 100 manhours worked.

"To make that kind of improvement again would be tough, but I would sure like to see you do it," he said.



CRAFTSMEN HONORS — In top photo, Gen. Arthur E. Exon, commander of Los Angeles Region of Defense Contract Administration Services, presents Convair Craftsmanship award to Dept. 454. Supervisor W. R. Walker, at left of podium. Others include Jack L. Bowers, Convair general manager, and Col. James R. Ourand, DCAS plant representative. In lower picture, Curtis A. Johnston, Convair chief of launch operations at Vandenberg AFB, presents Western Test Range perpetual Craftsmanship plaque to maintenance shops, Dept. 985-3, for September win. Others include John W. Wilson, assistant foreman; Ernest A. Millar, chief of operations support; and Walter L. Johnson, assistant foreman.

Six-Lecture Class Slated

"Introduction to Systems Engineering Management," a six-lecture course for engineers and engineering supervisors, will be offered by Convair Management Club from 5 to 8 p.m. Tuesdays Nov. 22 through Dec. 27 in the Bldg. 2 presentation room at Kearny Mesa.

Robert M. Williams, manager of systems engineering and predesign, will instruct. There will be no charge.

Systems engineering management philosophy, requirements, management tools, techniques and implementation methods will be covered.

Reservations may be made with Maridee Peterson, KM mail zone 581-10, ext. 1122.

Robert Montague, club education committee chairman, said the course will be scheduled later at Lindbergh Field if interest warrants.

KENT SINCLAIR DIES; COMPANY VETERAN

Kent Sinclair, manager of quality control at Electronics-SD operations since 1964, died Oct. 28 in a local hospital. Private services were held Oct. 31 at Greenwood Mortuary.

Sinclair, a native of New York, joined the Company at Convair division in August, 1940, in the wing department. Two years later he was promoted to inspector and was in inspection and reliability and quality control ever since.

He transferred to Electronics division in 1961 and three years later assumed the position of quality control manager.

He is survived by his wife, Ruth; three children, Grace, Keith, and Kent Jr.

CLAIMS RECORD

R. J. McPherson, Convair Dept. 566-3, claims a record, in that in his 18 years with Convair he has never been late, never forgotten his badge and never failed to clock in and out. Anyone beat it?

Movies Scheduled For Both Plants

A series of one-hour film presentations and discussion sessions titled "Tuesday Night at the Movies" are being held Tuesdays at 4:45 p.m. at Lindbergh Field and at 5 p.m. at Kearny Mesa for Convair Management Club members.

Robert Montague, education committee chairman, said 16 sessions with films on management, communications and human relations subjects have been scheduled. Others may be added.

Weekly presentations began yesterday (Nov. 15) and are being held in the Bldg. 14 second floor auditorium at Lindbergh Field and in Bldg. 17, classroom 1, at Kearny Mesa.

Further information can be obtained by writing Registration Desk, KM mail zone 124-00.

Engineer Will Head National Society

Robert R. Brazell, a senior research engineer in Convair division's life sciences Dept. 592-0, was elected president of the national Survival and Flight Equipment (SAFE) Association at its annual meeting and symposium last month in San Diego.

SAFE has chapters in San Diego, Los Angeles, New York and St. Louis and others being formed in Fort Worth-Dallas, El Centro, Calif., Dayton, Ohio, Seattle, Wash., and Anchorage, Alaska.

As a hobby, Brazell has developed and manufacturers fire starters now being used in Navy and Army Special Forces survival kits. He also has devised a practical and inexpensive survival kit for private aircraft (GD/NEWS, Dec. 22, 1965).

Mgt. Club Offering Self-Study Course

A self-study course in "Practical English and the Command of Words" is being offered for all Convair division employes and families through Convair Management Club's education committee.

Club boosters now have sample copies of study materials for review. Interested employes may register through this month for materials for the no-examination self-improvement course.

Talk on Reptiles Slated For Club

CRA Adventurers will present "An Evening with a Herpetologist" at 7:30 tonight (Nov. 16) in CRA Clubhouse auditorium.

Allan J. Sloan, curator of herpetology for the San Diego Zoo, will speak and show slides of reptiles of the U.S. Southwest.

Final plans also will be made for the Nov. 24-27 Thanksgiving holiday trip to the Havasupai Indian Reservation in Arizona.

Cyclists Will View 30 Min. Color Film

"Magic of the Bicycle," a 30-minute color film, will be shown at the CRA Bicycle Club meeting at 7:30 p.m. Nov. 28 in Room C at the CRA Clubhouse.

The film presents a history of bicycling as a sport from the time of the first cycle to the present. A business session also will be held with discussion on officers, dues and awards.

COINEERS MEET IN CAFETERIA

CRA Coineers meet tonight (Nov. 16), 7:30 p.m. in the Convair cafeteria, Lindbergh Field. Swap time will be from 7 to 7:45 p.m. All attending are reminded to bring displays based on "Women in Numismatics." Three turkeys will be given away in a "members only" drawing.

"MIXER" TOURNEY SET FOR MONDAY

CRA Badminton Club members will compete in a "mixer" tournament at 7:30 p.m. Monday (Nov. 21) in the Federal Building, Balboa Park, with winners eligible for a turkey draw. For information, phone Commissioner A. Van Norman, KM ext. 1864.

STAINLESS STEEL KNIVES ON SALE

Multiple-purpose pocket knives, made of fine quality German stainless steel and with the "Convair division" monogram, are on sale at all Convair division employe service outlets. Cost is $5, including tax.

CONVAIR LIGHTERS OFFERED AT $3

Convair division monogrammed Zippo lighters with lifetime guarantee are again on sale for $3 each, including tax, at all division employe services outlets.

Discount Tickets To Games Offered

Discount tickets to current attractions are being offered through employe services outlets.

Tickets go on sale today for the Dec. 11, 1:30 p.m., Chargers vs. Jets game at Balboa Stadium. Cost is $2.50, a $1 saving.

Hockey tickets (San Diego Gulls vs. Portland) for the 8 p.m. Nov. 26 game at San Diego International Sports Arena are on sale at $2, a 50-cent reduction.

Four Win Turkeys In Rifle Shooting

Four turkeys went to winners in the annual Thanksgiving shoots of CRA Junior and Senior Rifle Clubs early this month.

Junior Rifleers who took home birds Nov. 5 were Ken Moffat and James Allen. Jean McGregor and Dick Zeich won turkeys for top scores in the Seniors' Nov. 6 event.

Senior Rifle Club members have scheduled a shoot the evening of Nov. 23 at Gillespie Field Range. Junior Rifleers will hold their next regular shoot this Saturday, Nov. 19, at 1 p.m. on their new schedule. Junior shoots now are first and third Saturday afternoons from 1 to 4 p.m.

Dick Mostowy Wins In Tennis Playoff

Members of CRA Tennis Club's last beginners class of the year had "graduation exercises" in the form of a round robin tournament Oct. 18 and 20 on Kearny Mesa Courts.

Dick Mostowy of Dept. 512-2 won the men's singles after tying with Bob Hintz of Dept. 966-9 in the round robin then winning a one-set play-off, 6-2.

June Gottschalk (wife of Hirsch Gottschalk of Dept. 952-3) defeated Toby Purczynski of Dept. 130-9 to take the women's title.

Four Earn Master Points In Bridge

Master point winners in CRA Bridge Club play Nov. 4 were Don Leistico and Tony Miller, North-South; and Henry Fong and Peter Smith, new club members, East-West.

In regular play Oct. 28 Fred and Joan Nickerson won North-South honors and Jim Stephenson and Al Buggele, East-West.

Members are reminded that complimentary tickets to the Christmas party Dec. 22 will be available at regular club bridge sessions held Fridays in CRA Clubhouse.

Convair Lens Bugs To 'Shoot' Models

Convair shutter bugs will aim their cameras at live models at the Nov. 20 meeting, 7:30 p.m., in Balboa Park's Photo Arts Bldg.

Anyone interested in photography is invited to bring cameras and equipment and join in the "shooting." The club session is open to beginners as well as experts.

Christmas Tour Film To Be Shown

A film showing of last year's Christmas tour to Mexico will be held this Friday, Nov. 18, at 7 p.m. in the Convair executive dinning room, Lindbergh Field, for all General Dynamics people planning to join the Management Club-sponsored trip over the holidays.

Jim Hardison, tour conductor, will answer questions. The tour is scheduled from Dec. 23 to Jan. 8. Twenty-six already have signed, but late-comers may still make reservations. For detailed information call Hardison evenings at 276-5805.

Sports Drivers To Rally Sunday

Drivers in this Sunday's (Nov. 20) annual rally, sponsored by CRA Sports Car Club, will unravel the course from a series of photographs which replace written instructions in "Photorama-8."

First car will leave the parking lot at the Atlas missile, Kearny Mesa plant, at 10:01 a.m. Subsequent cars will leave at one-minute intervals. All contestants should check in at least 30 minutes before their starting times.

The course will take cars over 100 miles of scenic San Diego County paved roads, finishing at Michael's Steak House in Lemon Grove.

The Photorama-8 rally is strictly seat-of-the-pants, with no navigational devices except timepieces allowed.

Entry fee on day of event is $3.50 per car. All entries will receive dash plaques.

For information call Marvin Jensen, 453-4927, or Bruce Bertsch, 277-7658.

Horse Show Draws Crowd

Two-hundred entries were listed in 20 horsemen events at CRA Riding Club's open horse show which drew a capacity crowd to CRA ring Oct. 30.

Harry Webb of Bonita judged the 12 equitation and eight gymkhana events staged during the all-day show. Half-time featured performance of the Appaloosa stallion, Pat Hand, directed by his owner, George Myers of Lomita, Calif., who donated the entertainment.

Convair crewmen working the event were Boyd Spencley, showmaster; John Kreis, ringmaster; Jay Harmer, announcer; Judy Watson, show secretary. Manning the entry booth were Jessie Eiland, Adelaide Donahoo, Shirley Berry, Annette Spencley.

Roy Sims accepted the club's gavel at the Nov. 9 meeting, to fill the unexpired term of Sam Special who has transferred to Fort Worth division.

Sims extended an open invitation to all Convair people interested in riding to take part in the group's activities.



BAREBACK EXPERT—Gay Varner, up on Oro Bars, receives trophy for performance in bareback horsemanship at CRA Riding Club's Oct. 30 show from Luke Barbour, Dept. 016.



ROUND-TABLE—Bruce Handwerker, third from left, son of Ben Handwerker, Convair Dept. 493-0, sits in conference with Charles Mann, U. S. AID director in Viet Nam (head of table), and Vietnamese village chiefs whom he took to Saigon to view city administration.

Peace Corps Alumnus

Pig Sties Top Priority Lists In Viet Nam, Says Convair Son

A Convair son, who was the first member of a Convair family to join the Peace Corps, is on his second tour of duty with the U.S. State Department in Viet Nam.

While on a recent trip home he stressed the need and importance of mobile landing strips in Southeast Asia.

Bruce Handwerker, 28 (father, Ben, in Dept. 493-0), said, "There is no other practical way to move men, material, or personnel except by plane and helicopter. Supplies shipped by truck are frequently hi-jacked and drivers and passenger ambushed and killed.

"So, all agencies, both military and civilian, must depend on airlifts. And airfields which can be quickly laid, then picked up and relocated, may spell the difference between failure and success in our aims there."

(Convair is currently subcontractor for Kaiser Aluminum Chemical Corp. for fabrication of a portable-type of airfield landing mats for the Air Force. Present output is destined for overseas.)

Young Handwerker has now returned to Viet Nam for another two-year tour as a deputy province director with the Agency for International Development (AID). He is assigned to the Mekong Delta area with headquarters in Can-Tho, capital of Phan Ding province and a city of about 100,000 population.

AID province directors and deputies consult with South Vietnamese on how U.S. foreign aid funds should be spent. Projects are selected by the South Vietnamese themselves and evaluated by the director or deputy assigned to each of the 42 provinces.

Bruce explained that projects may be school houses, hospitals, first aid stations, water purification plants, dams, bridges—and even pig sties! In fact, pig sties are at the top of the priority list. Since animal bloodlines have been improved with modern breeding methods, the old pig pens are no longer strong enough to contain the large porkers now rooting in the barnyards of Viet Nam.

All projects are administered on a "self-help" basis. U.S. funds pay for materials but the Vietnamese furnish the labor.

Bruce entered the Peace Corps in 1962 following his graduation from University of Hartford (Conn.) and was assigned to Ethiopia as a secondary school teacher. While there, he inspired villagers to build their own schoolhouse, the first school building in the village.

'Personal Investing' Course to Begin

Convair Management Club's education committee will sponsor a six-week "Personal Investments" course from 5 to 7 p.m. Wednesdays beginning today (Nov. 16) in CRA Clubhouse auditorium on Kearny Mesa.

Rudy Paulson of Merrill Lynch, Pierce, Fenner and Smith, Inc., will instruct. Club members may enroll at the first session. There will be no charge.

Hornung, Naramore Receive New Titles

Edward J. Hornung and Richard C. Naramore have been named assistant treasurers of General Dynamics, Harold K. Pedersen, Corporate treasurer, announced this month.

Hornung, 43, has been with General Dynamics since 1955 in various accounting and financial positions. As assistant treasurer, he will work principally in the area of credits and customer financing.

Naramore, 47, joined General Dynamics in 1956. He has worked in the treasurer's department since 1962. As assistant treasurer, he will be concerned principally with cash management and banking relations.

Savings and Stock Investment Plan, Now Year Old, Lists 32,000 Members

After virtually a year of operation, General Dynamics' Savings and Stock Investment Plans now include approximately 32,000 active participants.

Under the Plans, contributions are made by individual employes by payroll deduction, with General Dynamics adding 50 cents for every $1 the employe saves.

The Savings and Stock Investment Plan went into effect for salaried personnel Oct. 1, 1965, and soon after a similar Plan was established in which hourly employes at the Corporation's aerospace divisions are participating.

Covered employes are eligible to participate after one year's service.

Eligible employes have four options as to how they want their contributions, as well as those of General Dynamics, invested:

(1) One-third in Government Bonds; one-third in a "diversified portfolio" of stocks of companies other than General Dynamics; one-third in General Dynamics common stock.

(2) One-third in Government Bonds; two-thirds in General Dynamics common stock.

(3) One-third in Government Bonds; two-thirds in the "diversified portfolio."

(4) 100 per cent in Government Bonds.

Option No. 1 has proven the most popular selection.

Participants in the Plans are permitted a choice as to how much they can contribute. Salaried employes may elect to contribute by payroll deduction 2 per cent, 4 per cent, 6 per cent, 8 per cent or a maximum of 10 per cent of their salaries. The percentages of wages which hourly employes can contribute vary somewhat but generally follow a sequence of progression over a period of time until reaching the 10 per cent maximum.

In all cases, General Dynamics adds 50 cents to every $1 the individual saves.

The Plan operates on a calendar year, quarterly system. Four times a year, Jan. 1, March 1, June 1, Sept. 1, the Plan is "opened" for new members, such as those who became eligible during the previous quarter. Application is made by enrollment forms available at employe services or personnel offices and must be submitted at least a month before the beginning of the calendar quarter in which membership is to begin.

Currently, therefore, new members must apply before Nov. 30, 1966, to become participants effective Jan. 1, 1967.

On the same dates the Plan becomes "open" for any changes in options that a member may desire. For example, a present participant might decide that he wants his future contributions (as well as those of General Dynamics) to be invested according to Option No. 1 rather than the one he previously authorized. This is accomplished by filling out a form at employe services or personnel offices. Again, it must be submitted at least one month before the beginning of the calendar quarter in which the change is to become effective.

The primary purpose of the Plan is to provide a systematic savings and investment program to which both the employe and General Dynamics contribute. Although the fundamental philosophy is to contribute to the individual's long-term financial security, there are provisions for withdrawals of funds under set schedules. These are spelled out in Savings and Stock Investment Plan booklets available at division employe services and personnel offices.

The Plan is administered by the Bankers Trust Company of New York City which is prominent in the field of managing savings and other employe benefit plans.

Once a year a participant receives an accounting from Bankers Trust, reporting the total amount of his contributions and those of General Dynamics and the current value of his account.

Five GD Men Serve On DOD Data Panels

Five General Dynamics representatives were among speakers on panels at last month's Department of Defense Industrial Symposium on Numerical Control Data in Oklahoma City.

They were R. I. Hagar of Convair, Jack Riegert of Pomona, L. E. Erwin and J. M. Kirksey of Fort Worth and E. F. Sweeney of Electric Boat.

Ion and Electron Bombardment Conducted in Test Facility

Spacecraft components are "traveling" to the moon and Mars and back in Convair's ion accelerator facility at the Harbor Drive Test Site in San Diego.

Before the Mariner spacecraft was launched, components were bombarded in Convair's test facility with more radiation than the calculated dosage received on a trip to Mars to see if the instrumentation system would survive without ill effect. The system withstood the ion and electron bombardment during tests — and, consequently, locked onto the star Canopus for guidance during flight, exactly as planned.

Convair's Dynamitron Accelerator, first of its kind, made especially for the division by Radiation Dynamics, Inc., is the only such facility in operation at any General Dynamics division and the only ion accelerator of its range in the San Diego area.

The Convair accelerator stimulates ion or electron bombardment, with energies up to 3 mega electron volts (3,000,000 volts), equivalent to the electric energy in the Van Allen radiation belt. By comparison, ordinary electric energy in the earth's atmosphere is 110 volts.

General Atomic also has an accelerator, but it operates on electrons only.

Especially suited to space research, the Convair ion accelerator's continuous beam, one-inch in diameter, directs a high current of ions and electrons from the large vacuum tank through a beam tube to an analyzing magnet. The current of ions and electrons is released from the magnet into the test chamber which contains components for radiation testing.

No one is allowed within the chamber during testing since full energy during tests would be fatal.

The facility building at the seaplane ramp has concrete walls, four feet thick, and a 20-ton concrete door on the bayside as a safety measure.

Closed circuit television cameras scan all sections of the test chamber during operation, and can be redirected by controls on the console in the control house 100 feet away.

The accelerator's continuous beam of ions and electrons is much more suited to space research than the pulsed-beam type of accelerators, explained Dr. Hideo Yoshihara, manager of Convair's Space Sciences Laboratory, who has jurisdiction over the facility.

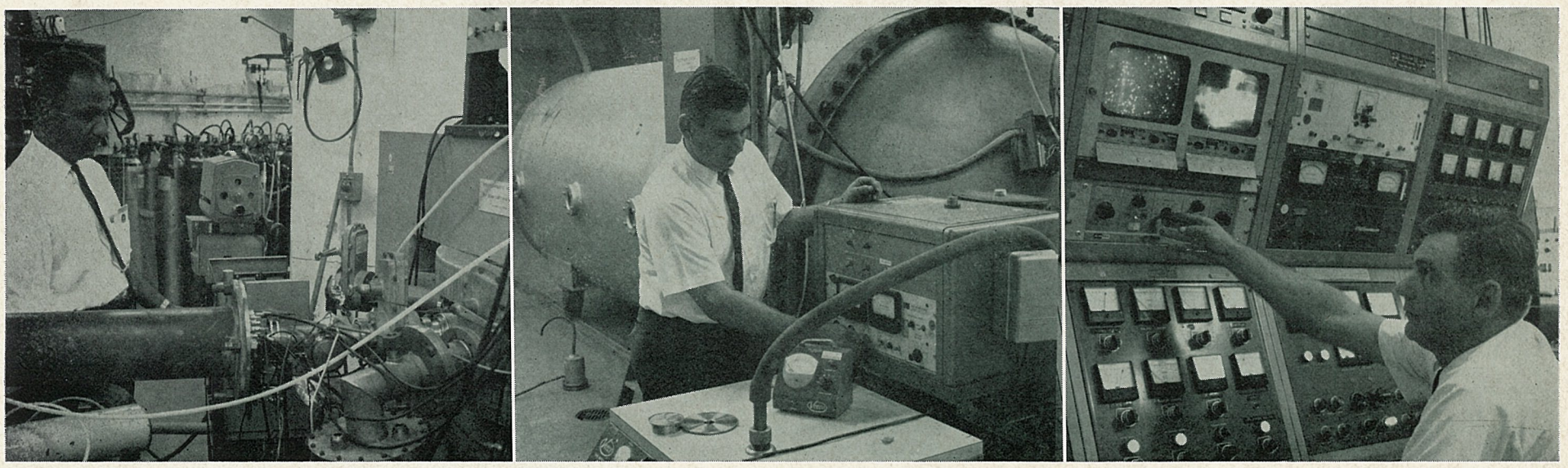
A 30-day exposure to extreme radiation, equalling the time that may be required for a space vehicle to go and come through the Van Allen belt on a typical mission, can be compressed into 16 hours.

Testing which has been accomplished for space missions, in addition to Mariner, includes a window for the Apollo spacecraft to ascertain if the optical properties of the specially-coated window would be changed by exposure to space radiation; irradiation damage to Centaur guidance system; shielding materials for the MOL project.

Currently under way is an investigation for General Atomic to measure the rates of reaction involving heavy ions in the atmosphere. Studies will help determine how rapidly an ion loses its charge after an atomic blast and become a harmless neutral particle or if it will become trapped in the magnetic field and become a hazard to space travel.

Even rats have gone into the test room to give Convair life sciences researchers some idea of how much radiation human beings will be able to endure at different levels of body exertion.

More than half of the work going through the facility is contracted by other General Dynamics divisions and outside companies, and with the increasing need for information about outer space and the hazards of space travel, the facility will become increasingly valuable in space research, Dr. Yoshihara said.



SPACE RESEARCH—From left, P. Mahadevan, staff scientist, checks pressure in experimental chamber of Convair ion accelerator facility which simulates radiation by subjecting materials to continuous beam of high current ions and electrons. In center, Arnold Comeaux, test engineer, operates controls to evacuate the accelerator tank and (at right) adjusts camera coverage in test chamber on control console located in building 100 feet from facility. Closed circuit television camera which shoots photos of test chamber onto screen can be seen in center of photo at far left.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 19, No. 24 PUBLISHED BY GENERAL DYNAMICS CORPORATION 52 Wednesday, November 30, 1966

Uprated Atlas SLV-3s In Final Assembly

The first of Convair division's two new longer and uprated versions of the Atlas SLV-3 launch vehicle is now in final assembly in the Kearny Mesa factory.

It is the Atlas SLV-3C, with a 51-inch longer tank to give it an additional 21,000 pounds of usable propellants.

Joseph W. Coddou, production program manager, said a factory configuration inspection for the first SLV-3C, No. 5901, is scheduled Dec. 15 with representatives of the Air Force Space Systems Division and the Defense Contract Administration Services Plant Representative's Office to participate.

Air Force acceptance of the completed vehicle is scheduled Feb. 6.

The first vehicle of the other new Atlas configuration, the SLV-3A, with a 117-inch longer tank and a 48,000-pound increase in usable propellants, now is being assembled.

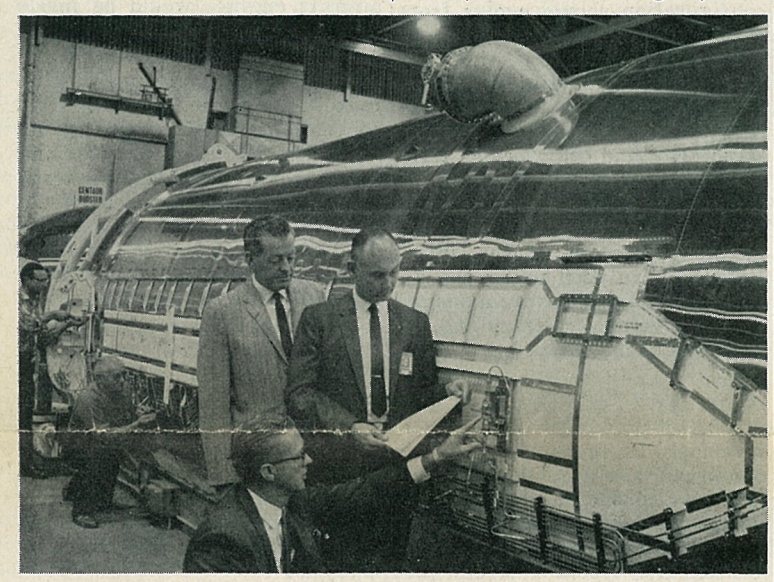
Coddou said five SLV-3C and two SLV-3A vehicles are under contract.

The SLV-3C will be a Centaur booster. No. 5901 will be used by NASA in next year's Atlas-Centaur 13 flight to send a Surveyor spacecraft to the moon.

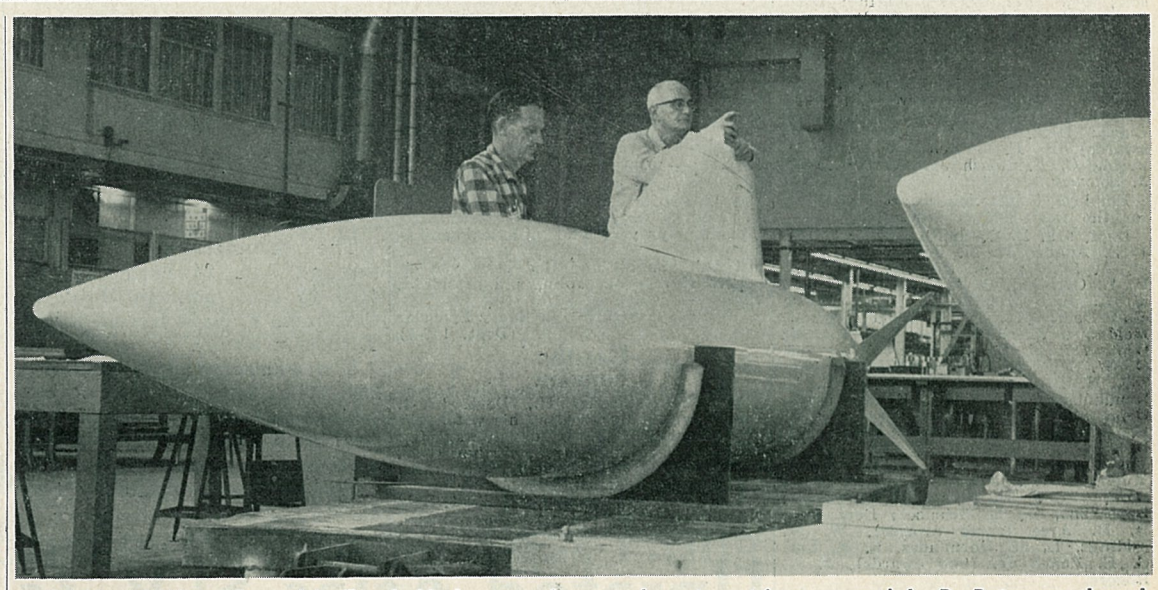
SLV-3C and Centaur will be capable of sending a 2,900-pound payload to escape velocity or 2,200 pounds to Venus or Mars from the Eastern Test Range.

The SLV-3A is designed primarily for use with the Agena but may be used as a booster for other second-stage vehicles.

(Continued on Page 2)



"NEW" ATLAS—Staging valve in equipment pod area on first production model of new, longer Atlas, the SLV-3C, is pointed out by James Griffin for L. H. Allen, left, and J. W. Coddou. Working in background are Earl Stetzel, left and Alexander Aunchmen, both missile assembly mechanics.



F-111 ASSIST—Convair's Frank Hudec, mockup and custom trimmer, and L. P. Peterson, bench machinist, both in experimental (Dept. 031) at Lindbergh Field plant, put finishing touches on wooden mockup of FB-111 external fuel tank built at Convair for Fort Worth division. Two were shipped last month.

Convair Assists In F-111 Program

Convair assist work on the 111 program for Fort Worth division is essentially on or ahead of schedule and some parts fabrication is under way.

Design work is virtually complete on the FB-111 external fuel tanks that Convair will build at the Lindbergh Field plant, and some tooling has started.

In addition to the fuel tanks, 111 work at San Diego will include manufacture of the electronics bay (the nose section between the crew capsule and the radome, which houses much of the aircraft's electronic equipment), stabilization booms (a part of the crew capsule which acts as a stabilizing "tail" to avoid tumbling in event of ejection); fuel tank and armament pylons; and design and fabrication of a number of items of ground support equipment (AGE) for the aircraft.

A 111 support program office was established at San Diego some time ago with J. S. Berggren and W. S. Stroud as program managers. Stroud is responsible for the aircraft elements and Berggren for tasks in the AGE area. They report to Mort Rosenbaum, director of aircraft programs at Lindbergh Field.

W. F. Helmich has been named assistant program manager, located at Fort Worth to provide close coordination.

Berggren joined Convair in 1956 as program administrator in long range planning for what became the Astronautics division. He later became SLV-3 program manager.

Stroud joined the Company in 1938 at Vultee Field and in his years with Convair has served as chief liaison engineer on the Convair-Liner 240/340 series; program administrator for the R3Y, F2Y, and 440; was responsible for master planning, scheduling, control and status reporting on the F-102/F-106 and Convair 880 programs. He transferred to Electronics division in 1961 where he headed the REINS program. He returned to Convair last year in program control.

Helmich has been with Convair since 1956 as senior thermodynamics engineer, design specialist and project engineer.

Manned Entry Vehicle Design Details Told

Details on Convair division's proposed VL3-A manned entry vehicle are being released to the public for the first time this week at the annual meeting of the American Institute of Aeronautics and Astronautics (AIAA) in Boston.

The VL3-A is designed to carry six men to orbit and return. Unique features of the spacecraft are wings and engines contained within the fuselage during orbital flight, which are extended for landing approach and powered landing.

Details of the VL3-A design are included in a paper on "The First Manned Lifting Entry Vehicle Configuration" being presented at the meeting by Robert A. Lynch, advanced project engineer in Convair's Dept. 581-5.

The VL3-A design incorporates a removable heat shield that is made of ablative material bonded to a titanium honeycomb support structure covering the nose and bottom of the vehicle. The upper portion of the body and cabin

(Continued on Page 2)

Early California Costumes To Feature Mgt. Club Dance

Convair Management Club members will dress in colorful costumes fashionable 200 years ago when they attend the club's annual New Year's Eve dance, which not only ushers in 1967 but serves as the first big affair in San Diego to highlight the coming California Bicentennial.

Over 1,000 couples are expected at the Dec. 31 event in the Community Concourse Ballroom.

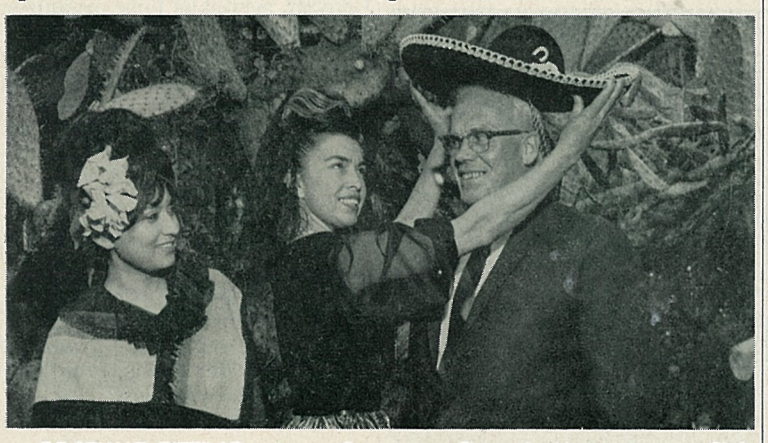
Dance committee of W. L. Van Horn's Lindbergh Field operations, hosts for the dance, have chosen the Early California Fiesta theme with everyone urged to attend in costume, if possible. However, costumes are entirely optional.

Cash prizes will be given for the best ladies' Fiesta costume, the best Don's costume, and other special costumes. Apparel may depict the Spanish, Mexican, Independent, and American eras of San Diego's past and present.

Buster Carlson's Ten plus One orchestra will play for dancing with special entertainment at intermission, including parade of costume contestants and award of prizes.

Dinner will not be served, but there will be bar service, hor d'oeuvres, and coffee.

Scholarship fund donations will be included in the ticket price so that everyone will be eligible for prizes.



COSTUME FITTING—Larry Sweeney, Convair Management Club president, tries on gaily-decorated Mexican sombrero for size with enthusiastic help from Stella Zamora and Theresa Espinoza in preparation for club's gala New Year's Eve dance. Costume affair will be based on Early California Fiesta theme.

NASA Commends Dynamics Role

General Dynamics has been singled out by NASA for a high award and has been commended by the Air Force Systems Command for its part in the success of the Gemini program, forerunner to placing a man on the moon.

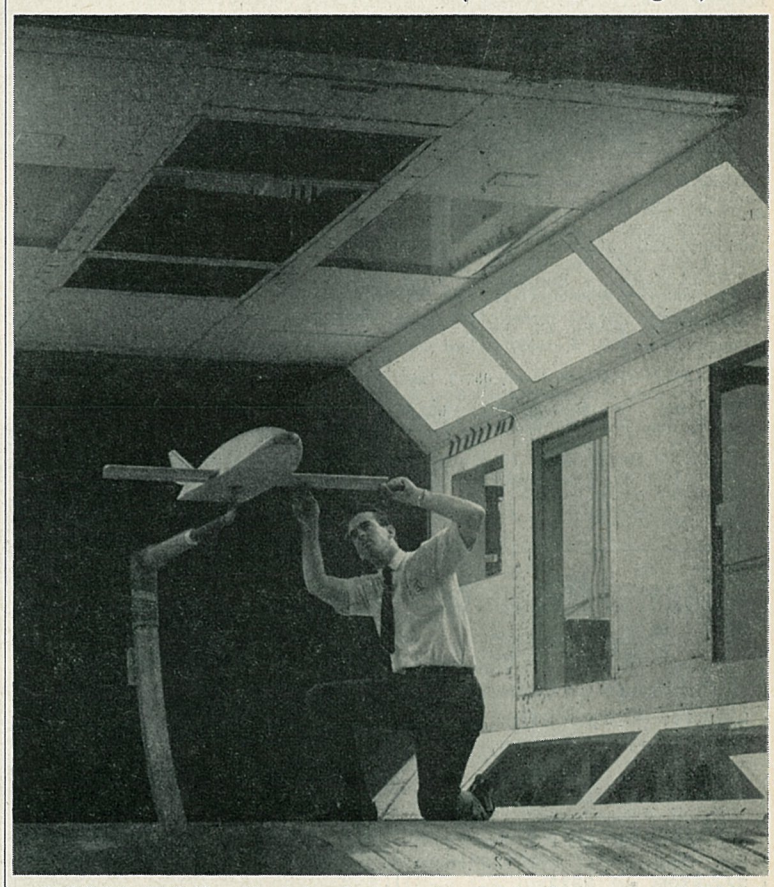
Convair-built Atlas launch vehicles have been used to boost Agena target vehicles into space for Gemini rendezvous missions. It was the division's 500th Atlas, SLV-3 No. 5307, which boosted an Agena for the 12th and final Gemini mission the middle of this month.

A telegram to Convair Division General Manager Jack L. Bowers, from James E. Webb, NASA administrator, last week announced that General Dynamics was one of the companies chosen for the NASA Public Service Award.

Bowers represented the Company at the awards ceremony Nov. 23 at NASA's Manned Spacecraft Center, Houston, Texas.

At the same time, a congratulatory message to Bowers from

(Continued on Page 2)



TUNNEL TESTS—Model of Convair division's proposed VL3-A six-man entry vehicle is positioned by Michael Harvey for tests in low-speed wind tunnel at Lindbergh Field. Wings would be inside fuselage during orbital flight.

Log Book Entries

Awards

CONVAIR

Employe Suggestion awards approved for the week ending Nov. 4.

Dept. 123, V. R. Hillman; Dept. 130, J. H. Cooper (two awards); Dept. 141, J. L. Eiland; Dept. 143, R. R. Reekers; Dept. 193, M. B. Beck, H. L. Maddox; Dept. 196, M. B. Showers; Dept. 250, E. J. Bauer, B. A. Rusk; Dept. 400, F. E. Cooper; Dept. 410, W. A. Carlson; Dept. 542, D. W. Moffat; Dept. 574, A. Aron; Dept. 588, W. Bachman; Dept. 715, J. A. Pinson; Dept. 759, G. D. Lundquist (two awards); Dept. 780, E. C. Teague; Dept. 832, E. M. Christensen; Dept. 953, N. M. Austin; Dept. 972, M. Prince (two awards); Dept. 973, E. W. Pagel; Dept. 985, W. J. Clark; Dept. 987, D. D. Arce (two awards), R. H. Churchill, J. W. Magnuson, C. E. Roach Jr. (two awards), J. Solowey.

Employe Suggestion awards approved for the week ending Nov. 11.

Dept. 019, L. O. Smith Sr; Dept. 143, J. S. Adams, D. M. Smith; Dept. 193, M. A. Smith; Dept 250, W. H. Apple, N. L. Oftedahl, B. A. Rusk; Dept. 401, M. A. Julio; Dept. 511, F. J. Signorelli; Dept. 574, C. L. Hagen, N. J. McManus, W. H. West, J. B. Whitfield; Dept. 717, N. L. Valentino; Dept. 733, C. W. Maxfield, R. E. Reeves; Dept. 759, N. B. Byrd, B. F. Fuller, G. D. Lundquist; Dept. 780, F. Puchahes; Dept. 819, C. B. Ward; Dept. 845, E. E. Hixson, C. W. Nelson; Dept. 964, D. F. Daniels (two awards), J. W. Ensley, K. K. Eulette; Dept. 973, G. Munoz; Dept. 974, B. K. Williams; Dept. 979, J. D. Flynn, E. J. McGee; Dept. 985, A. L. Scheibel; Dept. 987, D. D. Arce (three awards), W. M. Eddings, L. M. Hernandez, R. R. Lee, C. E. Roach Jr. (two awards), J. N. Rogers.

Employe Suggestion awards approved for the week ending Nov. 18.

Dept. 015, G. C. Archbold, S. Brown, F. E. Slayton, W. G. Wells; Dept. 130, R. M. Raymond; Dept .140, S. I. Engelman; Dept. 142, W. A. Dershem, B. P. Grisafi; Dept. 143, J. S. Adams (two awards), J. G. Roersma; Dept. 149, L. A. Liggett, G. F. Wilson; Dept. 250, C. Bruns; Dept 543, J. Hanson; Dept. 553, E. C. Madsen; Dept. 733, R. E. Reeves (two awards); Dept. 970, A. N. Sletnar; Dept. 973, T. M. Sammon; Dept. 985, W. L. Johnson, T. G. Neff, C. Silva; Dept. 987, L. A. Donahou, J. W. Magnuson, C. W. Neal, A. C. Zimmerman.

Invention Disclosures

CONVAIR

BAUMAN—R. T. and R. W. SCOTT, Dept. 756-0. "O" Ring Seals.

MILLER—H. S., Dept. 962-4. Self-Sealing Insulation Shield.

SIEBERT—V. W., Dept. 962-5, and A. J. WOODINGTON, Dept. 142-0. Constant Temperature Oven Control.

In-Plant Training

ORIENTATION

NEW EMPLOYES—Educational services staff, Lindbergh Field, ext. 491. Bldg 14 auditorium, Wednesday, Dec. 7, 4:30 p.m.; Tuesday, Dec. 13, 8 a.m. Kearny Mesa, ext. 1931. Bldg. 17, Room 7, every Monday, 8 a.m.

PROFESSIONAL/TECHNICAL

NEW INSPECTOR'S REPORT/ACTION REQUEST FORM—James Watt. Lindbergh Field plant, 9 a.m. and 1:30 p.m., Tuesday, Wednesday, and Thursday through Dec. 8. Bldg. 14, Room 6. 4:30 p.m. Dec. 1 and 8, Bldg. 14, Room 5. Each class runs 1½ hours. For class period assignment, phone Watt at KM ext. 1931 or Joseph Campanella, LF ext. 1412.

PROGRAMMED SELF-STUDY — A limited number of programmed texts covering many subjects are available in the educational services office, Bldg. 17, Kearny Mesa. These may be checked out for home study. Office hours are 8 a.m. to 5 p.m., KM ext. 1931.

Retirements

CONVAIR

ALVIS—Fred C., Dept. 987-0. Seniority date Oct. 22, 1950, retired Oct. 28.

BURNS—Robert E., Dept. 420-1. Seniority date Nov. 18, 1958, retired July 8.

COLE—Lewis C., Dept. 833-3. Seniority date June 13, 1941, retired Oct. 28.

COWELL—LaVere, Dept. 125-0. Seniority date Oct. 30, 1957, retired Oct. 31.

ERICKSON—Harry W., Dept. 404-1. Seniority date June 28, 1951, retired Aug. 19.

FRENCH—Richard P., Dept. 391-2. Seniority date June 5, 1961, retired Sept. 18.

GAUL—Louis J., Dept. 149-5. Seniority date Oct. 14, 1955, retired Oct. 28.

GRENOLDS—Gordon B., Dept. 841-0. Seniority date Nov. 1, 1950, retired Oct. 31.

GUNDERSON—Irene M., Dept. 250-0. Seniority date June 20, 1947, retired Oct. 31.

LANSANGAN — Emigdio A., Dept. 961-4. Seniority date Sept. 21, 1950, retired Oct. 7.

MORALES—Martin C., Dept. 015-0. Seniority date Feb. 5, 1951, retired Oct. 29.

PINHEIRO—Edward, Dept. 059-3. Seniority date Feb. 19, 1947, retired Oct. 28.

THIRION — Walter A., Dept. 687-1. Seniority date Feb. 10, 1941, retired Oct. 12.

TILLING—Hugo, Dept. 756-0. Seniority date July 5, 1944, retired Oct. 31.

WILLIAMS—Orville W., Dept. 142-2. Seniority date Oct. 17, 1955, retired Sept. 26.

Rider-Driver

CONVAIR

RIDE WANTED—From Fletcher Hills to Lindbergh Field plant, 7 a.m.-3:30 p.m. shift. Call McEachern, ext. 519, LF, or home phone, 442-4156.

Personals

CONVAIR

The family of Charles McLeod wish to express their thanks and deep appreciation for your thoughts at the time of his death.

Mildred McLeod and Family

* * *

My family and I wish to express our deepest appreciation for the sympathy and help extended to us by our Convair friends during our recent bereavement.

The loss of my beloved daughter-in-law, Trena, in such a sudden and tragic way was softened by the knowledge that so many were offering comforting thoughts, prayers and practical assistance.

Thank you all and God bless you on behalf of my son, John, and grandson, Jay.

Mary Sponsler
(Dept. 143-3)

Deaths

CONVAIR

McLEOD — Charles H., Dept. 986-4. Died Nov. 10. Survived by his wife, Mildred, Dept. 131-4; two daughters, Mrs. Barbara Reed and Mrs. Marilyn Cole; a son, Charles K.; three brothers, three sisters, four grandchildren.

SAFFOLD—Willmon, Dept. 250-1. Died Nov. 17. Survived by his wife, Blanche.

Salvage Yard Open Saturday, Dec. 10

Next employes sales day at the Lindbergh Field salvage yard will be Saturday, Dec. 10. Sales hours from 8 a.m. until noon. No children are permitted inside the yard during sales hours.

'Management Issues' Subject For Course

"Issues in Modern Management," will be offered by the Convair Management Club at Lindbergh Field plant starting Tuesday, Dec. 13.

The course will continue through Jan. 24 each Tuesday, 4:45 to 6:45 p.m. in Bldg. 14, Classroom 8. E. F. Kotnik will be discussion leader.

The course will be limited to 25.

Textbooks will be issued at the first class session. Only charge is a refundable deposit of $3.

Registration bulletins will be distributed in early December.

Uprated Atlas SLV-3s In Final Assembly

(Continued from Page 1)

The first SLV-3A, No. 5602, is scheduled for delivery in May and will carry an Orbiting Geophysical Observatory payload. The second, No. 5104, will be booster for an Applications Technology Satellite mission. Both will be launched from Cape Kennedy.

Modification of the MA5 engine system for both "new generation" vehicles for higher operating pressure in the gas generators will increase thrust of the booster engines to 336,000 pounds and of the sustainer engine to 58,000 pounds. Lube oil tankage also is increased for longer engine "burn" times.

The SLV-3C prototype will be the first of the SLV-3 vehicle "family" to fly a new Convair propellant utilization system. Two additional helium bottles (bringing total to eight) also will be flown to provide additional pressure required for the longer tanks.

Production of the new SLV-3C and SLV-3A boosters is under the direction of Richard W. Keehn, manager of the Atlas SLV program office.

Frank Wozniak is in charge of the basic boosters with Robert Korte responsible for all flight kits except for the autopilot. Mickey Cornwall is responsible for the autopilot kits.

L. H. "Chic" Allen is handling production control; James Griffin, factory operations; Robert Amick, material; Russell Fox, planning and scheduling; Max Fisher, electronics, and Gordon Briggs, quality control.

Before production of the two new vehicles began, a "mock-up" of electrical harness and other flight hardware of the SLV-3A configuration was made on the tank of Atlas 144-D, an old Mercury-type vehicle that had been in storage at Air Force Plant 19.

Coddou said the second SLV-3C tank will go into final assembly in the factory as soon as the first is moved into checkout.

Several "docks" in the factory, weld fixtures, the hydrostatic test tower and launch vehicle trailers have been modified to compensate for increased length of the new vehicles. Minor changes required at launch pads will include lengthening of umbilical towers and modification of some service tower platforms.

NASA Commends Dynamics Role In Gemini

(Continued from Page 1)

Gen. James Ferguson, commander of the Air Force Systems Command, lauded Convair's performance:

"The final launch and operation of the Gemini Atlas launch vehicle in conjunction with the 12th Gemini space mission has clearly demonstrated what a close-knit government-industry team can achieve.

"Each individual involved can be justifiably proud of the new space records that have been made to our country's space program. It is extremely difficult to give the credit to any particular person since the effort of each participating individual of each organization was necessary to carry out the objectives of the program.

"I wish to offer my heartiest congratulations to you and your people for the excellent results and to indicate my sincere appreciation for their magnificent spirit of cooperation and highly motivated competence. The Air Force Systems Command is proud to have been associated with you and NASA in the highly-successful Gemini program."

Manned Entry Vehicle Plans Disclosed for First Time

(Continued from Page 1)

area would be covered with 718 nickel panels over micro-quartz insulation and an aluminum frame.

Lynch said the removable lower heat shield can be replaced immediately after each re-entry flight. The shields can be stripped and new ablative material applied and cured after each use.

The VL3-A is designed for a 39.2-ft.-long and 12-ft.-wide fuselage. Wing span, with the wings fully extended at subsonic speed, is 37 feet, 8 inches. The wings would be partially extended for center of pressure control through the transonic region.

A trainer version of the VL3-A, equipped with higher thrust turbojet engines, would give pilots ample opportunity to fly the vehicle and establish confidence in it before actual re-entry flights.

The trainer would take off under its own power from a conventional airfield and permit operation of the folding wings. A dual-position wheel and skid landing gear would be used for normal wheel take-off and skid landing.

Lynch said the Air Force is expected to select two contractors to perform manned lifting entry vehicle configuration studies within the next few weeks. A final configuration should evolve from these studies.

Personnel working on the VL3-A study included Philip A. Kessel, preliminary design; Chris J. Cohan, aerodynamics; Jack Prunty, structures; and Gail Schadt, aerodynamic heating.

Convair studies that have resulted in design of both the VL3-A and re-usable space launch vehicles have been under the direction of Richard Nau, manager of maneuverable re-entry and re-usable launch vehicles for Convair.

* * *

General Dynamics will have a technical display at the AIAA meeting including models and drawings of the VL3-A, re-usable launch vehicles, ablative materials, a 1/10th-scale model of Atlas-Centaur and Apollo Instrumentation Ships.

More than 5,000 aviation and space scientists attending the meeting are expected to see the display.

Presentations on the re-usable spacecraft are to be given periodically at the display by Nau, Lynch and J. R. Thayer, assistant project engineer.

* * *

Frank J. Dore, director of advanced programs, said Convair engineers have been working since 1958 on design of re-usable first-stage launch vehicles and recently completed a $100,000 eight-month advanced study funded by the Air Force Space Systems Division on "Near Term Launch Vehicles." Earlier studies on feasibility of adapting the Atlas for recovery and re-use were company funded.

"The best features of present-day technology for both rockets and aircraft can be combined," Dore said. "From what we have learned, we believe it will be technically feasible to develop both first and second-stage recoverable vehicles."

Early studies of a "winged Atlas" led to more advanced, larger first-stage designs that have a cockpit, wings, and tail sections much like conventional aircraft. Jet engines below the wings would be covered by fairings during launch and exposed to the atmosphere at subsonic velocity for low-level cruise back and landing. Fuel tanks for the aircraft engines would be inside the fuselage.

Pilots could fly the vehicle, using aircraft engines and with no rocket propellant aboard, from conventional landing fields for development, training, and ferrying before actual space launch tests. Conventional landing gear would be used for take-off and landing. Operational flight, however, would all be vertical rocket take-off with horizontal landing.

Dore said there is mounting interest on the part of government officials in re-usable space boosters because of their economic desirability.

Personnel assisting with Convair's recent studies include Glenn Karel, study manager; Peter Plummer, configuration design; and William Knapton, cost analysis.

Use of manned re-entry vehicles such as Convair's proposed VL3-A is expected to be the first step toward eventual use of recoverable and re-usable booster and upper-stage rockets.

★ ★ ★

General Dynamics Speakers Take Part in AIAA Meeting

Several General Dynamics employes are presenting papers at the four-day third annual meeting of the American Institute of Aeronautics and Astronautics that ends Friday in Boston.

M. F. Dorian, staff scientist in Convair space sciences Dept. 596-0, is speaking on "A New Technique for Scheduling and Simulation of Manned Orbital Operations."

Jerome E. Butsko, a senior aerodynamics engineer in Convair Dept. 583-1, will present a paper on "Prediction of the Subsonic Base Drag of Hypersonic Re-Entry Vehicles."

Robert A. Lynch, advanced project engineer in Convair Dept. 581-5, will discuss "The First Manned Lifting Entry Vehicle Configuration."

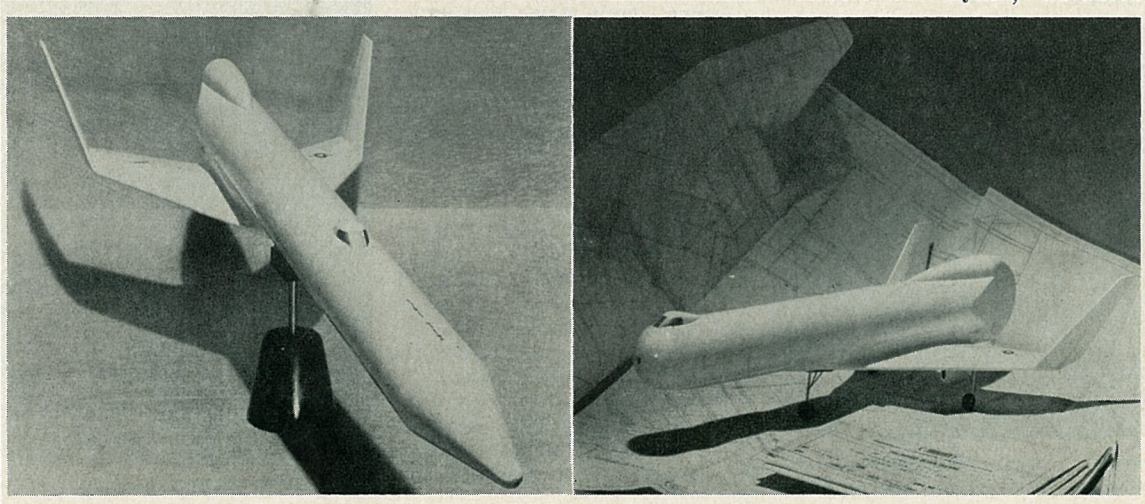
Dr. William A. Shafer, a neurosurgeon and aerospace medicine specialist in Convair Dept. 592-0, will describe "Systems Management Applied to the Development of Artificial Organs."

C. D. King, a life sciences engineering design specialist in Convair Dept. 592-0, and E. A. Zuraw, a senior scientist for Electric Boat division, will have a paper on "Closing the Ecology for Spacecraft."

Earl Boteler, manager of advanced aircraft programs for Convair, served as topic organizer for "Manned Orbital Missions" and "Orbital Missions Operations and Space Design" presentations for the meeting.

U. S. Camera magazine, at an awards luncheon scheduled in conjunction with the AIAA meeting, is presenting its "Achievement Award" medallion to General Dynamics for its role in the Gemini and Surveyor programs.

Grant L. Hansen, Convair vice president-launch vehicle programs, will accept the award in behalf of Roger Lewis, president, and General Dynamics.



ON DISPLAY—Models on display in Boston include these of (left) two-stage vehicle designed for first stage to be flown back to earth and (right) single stage recoverable booster. For sketch of "winged Atlas," see page 3.

General Dynamics News

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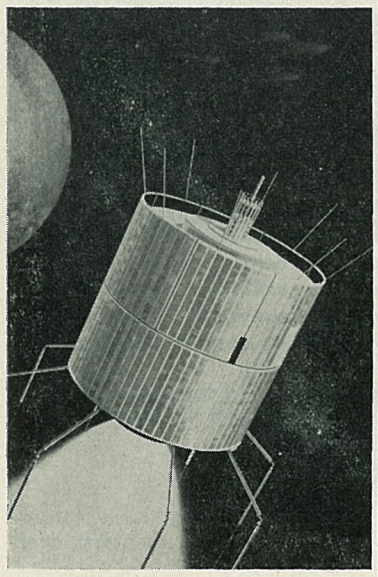
Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

Is it news? Pick up a phone and call GD/NEWS

Atlas SLV-3 Will Boost Technology Satellite

Convair division's Atlas SLV-3 No. 5101 will serve as the booster for launch of the first of five Applications Technology Satellites, the ATS-B, from Complex 12 at the Eastern Test Range next week.

ATS-B, a 1,550-pound spacecraft loaded with equipment for a variety of experiments, will be maneuvered into a synchronous and stationary orbit about 19,351 miles above the Pacific Ocean.



SYNCHRONOUS ORBITER — Artist's drawing depicts Applications Technology Satellite, such as one to be launched by an Atlas SLV-3 next week.

It will be spin-stabilized at 100 revolutions per minute and "held on station" by periodic readjustment of its orbital period for three years as it feeds masses of information to scientists at ground stations in a dozen countries.

After the Atlas completes its launch mission, two burns of an Agena D second stage will carry the ATS-B into a "transfer orbit" with an apogee of about 22,752 miles.

The spacecraft then will separate and will be "spun up" by a cold gas blow-down system. Its apogee motor will be fired after 16 hours and 10 minutes of flight to accelerate it to circular synchronous velocity.

ATS-B is expected to drift to its "station" at about 60 degrees west longtitude over the Pacific in about a week. An on-board thrust-rocket peroxide system will be used for required readjustments.

A new spin-scan cloud camera aboard the ATS-B will generate a photograph of about one-third of the earth's surface every 20 minutes to give meteorologists information on cloud formations and changes.

Microwave communications equipment aboard will be used for evaluation of techniques for simultaneous transmission of voice, television, telegraph and digital data to a number of ground stations.

A variety of experiments will be conducted to measure the spacecraft's orbital environment. Nine experiments for different researchers will be integrated into a single "flight package."

ATS-B will provide the first flight test of an electronically phased array antenna as part of the basic spacecraft communications system. It will produce a conical beam that will rotate opposite to but at equal speed with the spacecraft spin for satellite-to-earth transmissions.

The ATS-B operations control center will be at NASA's Goddard Space Flight Center in Greenbelt, Md., which has project management responsibilities for the ATS program.

Ground stations in North Carolina, California and Australia will transmit radio commands. Telemetry and tracking assistance will be provided by other stations in South Africa, Australia, Florida, Ecuador, Peru and Chile.

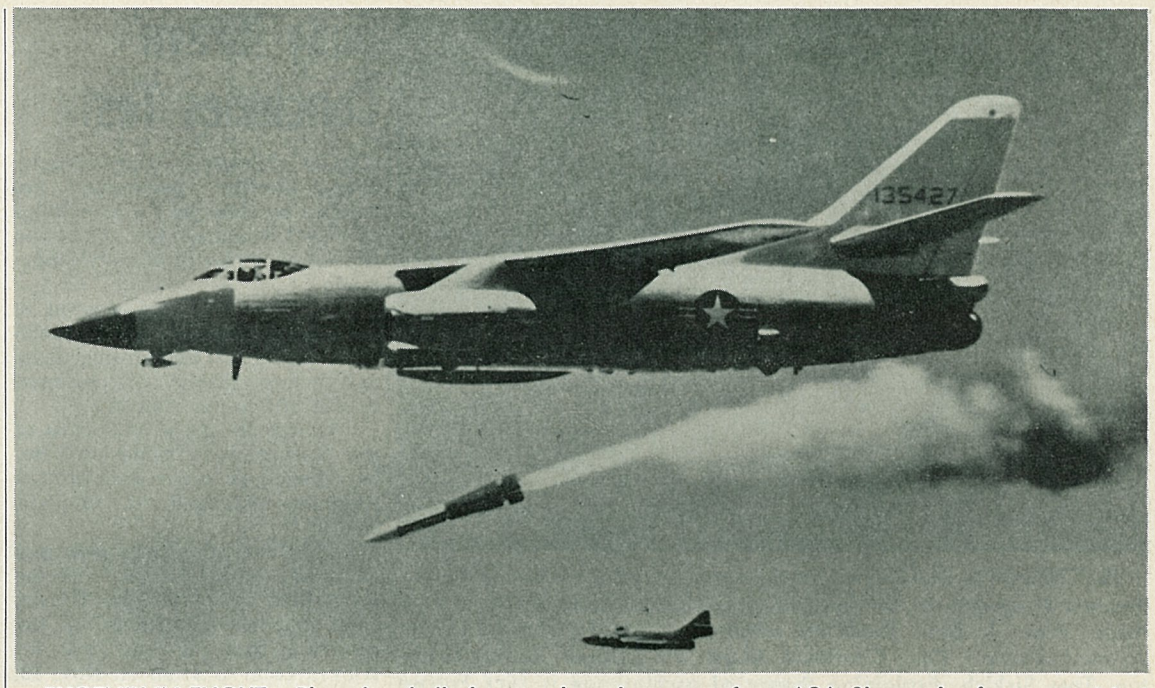
Other ground stations receiving information from the ATS experiments will be in Canada, Japan, Sweden, England, France and India. Hughes Aircraft Co. is prime ATS contractor with Lockheed Missiles and Space Co. integrating interfaces.

Jim Von der Wische, Convair program manager for NASA SLV-3 programs, is responsible for the Atlas booster and Thomas C. Chitty will be launch conductor.

The Atlas booster engines will cut off 2 minutes and 9 seconds into flight with sustainer engine cutoff at 4 minutes and 49 seconds. The Atlas is to separate from the Agena and ATS-B 5 minutes and 10 seconds into filght.

Convair recently had a "tiger team" from Kearny Mesa and Vandenberg AFB at the Cape for a week for a comprehensive review of the Atlas and a vehicle equipment assessment presentation.

Members of the "tiger team" and areas they represent are J. W. Ball, product review; C. C. Campbell, reliability evaluation; Kenneth Catlin, flight control-propellant utilization; G. R. Anspach, propulsion; D. E. Howard, pneumatics; G. D. Clapp, hydraulics; F. L. Cook, instrumentation; L. R. Lisak, electrical; H. E. Harper, flight control-autopilot; J. W. Ensley, configuration management; G. K. Jerahian, structures; J. W. Taylor, reliability assurance; R. N. Roth, launch control, and C. F. Ritter, WTR engineering.



PHOENIX IN FLIGHT—Phoenix missile is seen dropping away from A3A Skywarrior in a recent test launch. It levels off and continues toward target on its own power. Phoenix will be long range armament for F-111B, built by Fort Worth division.

Missile Armament For F-111B Successful in Air Test Firing

A direct "hit" and a successful "interception" have been chalked up by the Phoenix missile system in early prototype testing.

The Phoenix, and the missile control system which launches it, is the F-111B's long-range armament. Designed and built by Hughes Aircraft Co., the missile system will have greater capabilities than any other air-to-air system now operational.

In its first guided firing, the Phoenix scored a "hit" on a target drone over the Pacific Missile Range near San Nicolas Island, 50 miles off the California coast. The impact knocked the drone into the ocean, even though the missile did not carry a warhead. Hughes pilots fired the missile from a Navy A3A Skywarrior.

All test objectives for the first guided flight were met successfully, Navy officials reported.

In another firing, the Phoenix located a high-speed drone on radar, locked on at long range, and scored a technical "intercept" by passing the target within a specified "miss distance" that would have destroyed a full-sized aircraft.

All test objectives for the launching were met successfully, officials at the Naval Missile Center reported.

Two successful launches of Phoenix missiles have been made from F-111B No. 3, bailed to Hughes at Culver City, Calif.

A "clean separation" from the F-111B was noted in the initial inert launch. In the second launch the Phoenix missile system fired successfully seconds after being dropped from the F-111B.

Firing of the Phoenix from the F-111B at a live target will follow sometime after the first of the year. Meanwhile, flights will continue in an effort to perfect installation of the missile system. F-111B No. 2 is slated to go to Hughes after the first of the year.

The Phoenix system consists of the missile itself, an advanced radar and missile control system, and the missile/bomb launcher.

Mission of the system is to maintain air superiority over distant objective areas such as beachhead landings, as well as over the Navy's fleets in anti-air warfare. To do this job, the system will be able to lock on an enemy aircraft in any kind of weather and launch the Phoenix missile. The missile will then take over and intercept the target.

Data from the radar is processed by a solid-state, high-speed general purpose digital computer. The computer output is displayed to the missile control officer on two displays: a 10-inch cathode-ray tube and a 5-inch multi-mode storage tube.

The long-range, high-performance missile has a solid-propellant rocket motor.

The missile is assembled in sections, making it possible to handle it as a complete unit or to break it down for easy shipboard checkout and handling.

Built-in self-test features are incorporated.

Be sure to use the ZIP code when addressing mail. It speeds up delivery!

Harr Will Chair Reliability Panel in San Diego Dec. 5-7

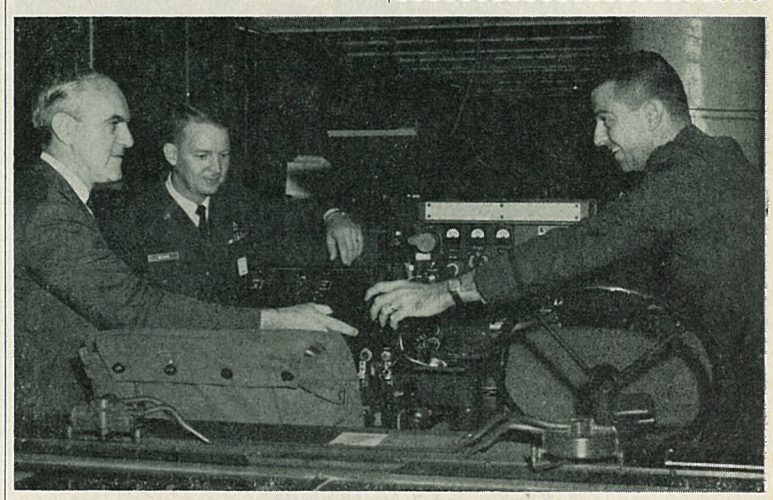
A General Dynamics' Panel on Reliability, with members representing various divisions of the Corporation, will meet Dec. 5 through 7 in the Town and Country Hotel, San Diego. P. I. Harr, director of reliability, quality control and value control for General Dynamics, is chairman.

"Systems/Cost Effectiveness" will be the theme. Among guest speakers will be Cdr. E. B. Morrison, reliability and maintainability officer for the Naval Materiel Command, and Q. T. Wiles, vice president and general manager of TRW Electronics.

Jack L. Bowers, Convair division general manager, will speak at a Dec. 5 dinner meeting on "Product Effectiveness from the General Management Viewpoint."

A General Dynamics' Motivational Task Team, under the chairmanship of W. E. Magnuson, chief of special projects in reliability control for Convair, will be meeting Dec. 6 and 7 at the same location.

Among presentations at that meeting will be discussions of motivational approaches to be used in engineering, technical or "software" areas by John A. Serrie, director of design engineering for Electric Boat, and Paul D. Ferrara, director of engineering administration and services for Convair.



BRIEFING—Prior to Tactical Air Command briefing at Electronics division of General Dynamics, A. A. Farrar, vice president-marketing, discusses AN/MRC-107 communications central with Capt. Glenn A. Bethany, center, and Capt. Peter W. Brent, TAC officers. Communications central now in production at Rochester is used by forward air controllers under TAC directions who radio attack information to fighter aircraft.

Electronics Division Continues Production of Jeep Radio Units

Electronics division has thus far delivered 175 jeep-mounted "communication centrals" (designated AN/MRC-107) to the Air Force since the first one was shipped out June 30 of this year.

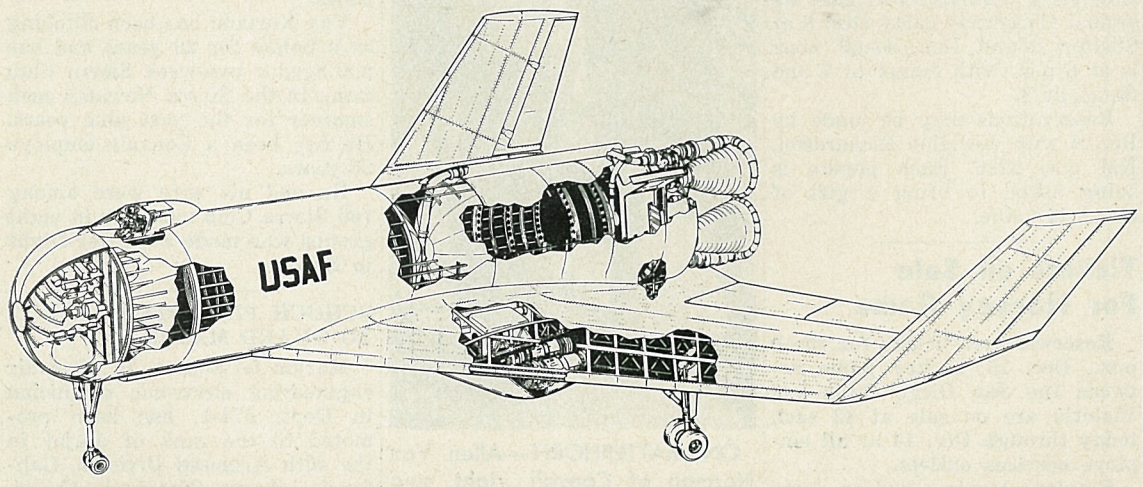
The balance of the order for 377 units should be delivered by February, 1967.

The units are for use by air controllers in forward combat areas. They fulfill virtually every communications need in the field, having facilities to broadcast HF, VHF, UHF, single sideband, sideband, and both AM and FM. The radios can be carried in a trailer or operated directly off the jeep.

Installation of the equipment on jeeps is being done at Electronics' Rochester plant, the only major modification to the jeeps being the turning of the "shotgun" seat so it faces the rear and the mounting of a rack which holds the radios.

The rugged military systems provide immediate communications for forward air controllers with air and ground forces, whether the jeep is moving or stopped. Two portable manpack sets also are provided, one to communicate with ground forces, the other direct to aircraft.

Once the installation has been completed, the jeeps are delivered to various Air Force bases around the country for deployment elsewhere.



RE-USABLE ROCKETS—Exhibit at American Institute of Aeronautics and Astronautics in Boston this week features Convair division re-usable rocket studies. Cut-away drawing details early "winged Atlas" concept.



ELECTRONICS CLASS—In final stages of pilot course in fundamentals of electronics for Convair industrial electricians are, around table: Alan R. Dyer (back to camera), Cletis J. Colvin, Roy B. Johnson, Floyd J. Olin, Charles A. Lager, Bill Mabrey, Robert Thornton, Tom Sickich. Explaining theory of oscilloscope is Dick Forrest of Convair educational services, instructor.

Pilot Course Involves Basics Of Electronics and Circuitry

A pilot course in fundamentals of electronics and digital applications will end the middle of next month for a group of industrial electricians in Convair's Dept. 250.

The 120-hr. course, which began last August for the first time under auspices of Convair educational services, is designed to upgrade knowledge of electronics for application on the division's numerical controlled equipment.

Dick Forrest, educational services training specialist, has conducted two sessions a week, three hours each, for seven Convair electricians.

Subject matter has dealt with basic electronics, circuits, special circuits, digital devices, test equipment. Concluding classes are emphasizing logic circuitry.

The accelerated course is covering material in a third of the time usually allotted for equivalent material on the same subjects in a junior college. Other such training sessions will be scheduled in the future, if the need arises.

NO-HOST DINNER SET FOR FLYERS

A no-host dinner is scheduled for Bonair Flyers as the club's first social get-together on Dec. 6 at the Campus Chuck Wagon, 6205 El Cajon Blvd.

Cocktail hour will start at 6:30 p.m. with dinner at 7.

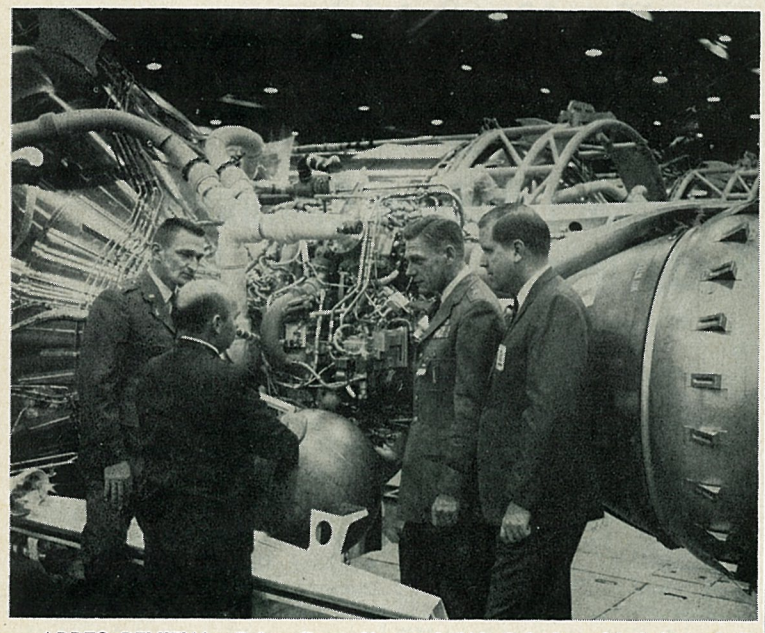
Turkeys and hams will be given as door prizes, Lee Chastain, acting commissioner, said.

Members are invited to bring guests.

Reservations must be made by this Friday (Dec. 2) through Chastain, 4719 Caroline Drive (92115), home phone 582-9430.



CON-TRIB GIFT—Bus equipped with a wheel chair ramp, fold-away seats and locking devices for wheel chairs recently was presented by Convair Con-Trib-Club committee to Sheltered Workshops of San Diego, Inc. A. E. Hill, left, a Convair employe and also Sheltered Workshops director, accepted. Others, from left, are J. W. Hudson, F. E. Allen, L. W. Janson, H. C. French, D. D. Strange, Mary Martin, J. K. Field, E. E. Larsen, Willard Russ Jr., J. R. Benedict and R. W. Fitzgerald.



ABRES REVIEW—Brig. Gen. Kenneth W. Schultz, third from left, deputy commander for Advanced Ballistic Re-Entry Systems for Air Force Ballistic Systems Division, Norton AFB, recently visited Convair division's Kearny Mesa plant for an ABRES launch vehicle program review. With him for tour of Atlas E and F vehicles in factory are Lt. Patrick Maderia, left, his aide; Robert G. Daly, launch vehicle programs factory operations manager; and Grant L. Hansen, right, vice president-launch vehicle programs.

Buoy 'Bravo' Concludes Tests

Buoy "Bravo," oceanography data-gathering prototype developed by Convair for the Office of Naval Research, has completed the latest series of tests off Bermuda.

The buoy had been moored in deep water 18 miles off Bermuda since mid-June undergoing tests designed to establish the optimum length of the mooring line.

"Almost all of the objectives of the testing were achieved," Robert Devereux, ocean data station program manager at Convair, said.

K. N. Jones, Convair's principal engineer with Bravo, relayed word last week to Stan Uyeda, chief marine operations in the program, that the buoy was retrieved from location on Nov. 19, and towed back to St. George.

It is now secured to an anchor buoy at the Naval Operating Base at King's Point awaiting tow to the mainland as soon as possible. Some instrumentation equipment will be removed and sent to San Diego for installation on "Alpha," second buoy prototype now under construction.

Bravo will be sealed and eventually returned to San Diego for refurbishment and retrofit to a fully operational article identical to Alpha.

Schedule of Films Set by Mgt. Club

Convair Management Club members may attend "Tuesday Night at the Movies," at either Kearny Mesa or Lindbergh Field plants at any time without regular attendance.

The one-hour films and discussion sessions are held Tuesdays at 4:45 p.m. at Lindbergh Field in the Bldg. 14 auditorium with discussion leader C. D. King presiding; and at 5 p.m. in Kearny Mesa's Bldg. 17, Classroom 1, with J. C. Ables Jr. as discussion leader.

Among the 25 films to be shown are such titles as: The Real Security, The Managerial Grid, Breaking the Delegation Barrier, Principles of Persuasion, Imagination at Work.

There are no fees, no books, and no assignments.

Orders Being Taken For AC-10 Photos

Due to the number of requests, Convair employe services outlets again are accepting orders for color 8x10-inch photographs of the Atlas-Centaur 10 launch.

Employes may leave their name, mail zone and plant phone extension with a $1 deposit for each photo desired at employe service outlets, including those at Eastern and Western Test Ranges.

Fifty additional requests are needed for the second minimum 100-print order. Deadline for orders is Dec. 12.

SAWE Chapter Plans Xmas Party Dec. 8

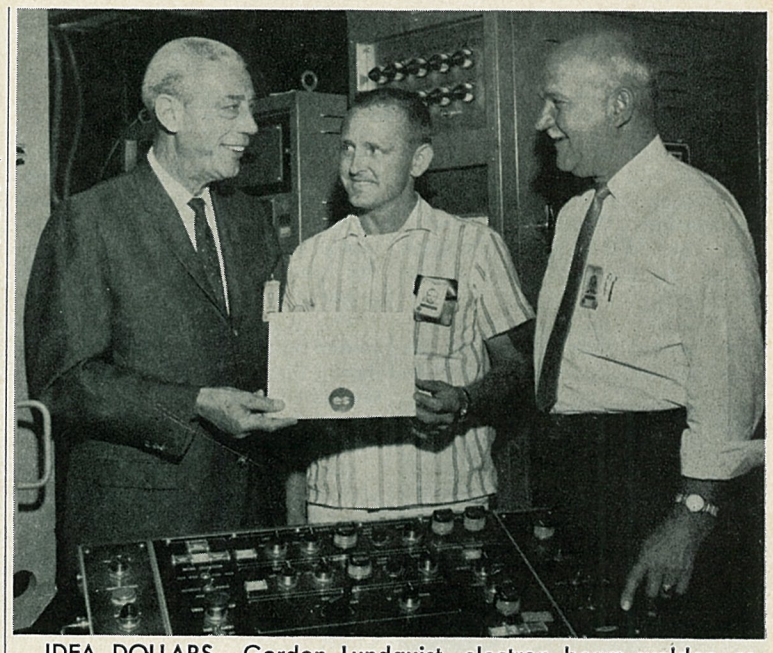
The San Diego Chapter of the Society of Aeronautical Weight Engineers (SAWE) will hold its annual Christmas party Dec. 8 at Shelter Island Inn. Social hour is at 6 p.m. with dinner at 7 and Santa at 8.

Reservations may be made by Dec. 6 with Jeweline Richardson, KM ext. 2296. Each person is being asked to bring a gift of about $1 value.

Tickets on Sale For Hockey Game

Reserved seat tickets for the 8 p.m., Dec. 16, hockey game between the San Diego Gulls and Victoria are on sale at $2 each today through Dec. 14 at all employe services outlets.

Employe services had an early sell-out of 200 reduced-price tickets allotted for the Nov. 26 Gulls' game with Portland.



IDEA DOLLARS—Gordon Lundquist, electron beam welder, receives $856 Employe Suggestion award certificate and check from John P. Hopman, left, Convair factory manager. F. E. Grossher, right, general foreman for Dept. 759, offers congratulations.

$856 Suggestion Award Earned For Power Overload Idea

Gordon Lundquist, electron beam welder in Dept. 759-0 at Convair division's Kearny Mesa plant, has received an $856.60 award check for an Employe Suggestion that has resulted in design of a new overload delay circuit for the electron beam welding machine he operates.

The award check and certificate were presented to Lundquist, a frequent suggestion award winner, by J. P. Hopman, factory manager.

Before Lundquist submitted his suggestion, when a high voltage overload occurred in the electron beam weld cycle, the voltage was cut off immediately by a breaker switch. This caused imperfection in the material and resulted in parts being scrapped.

Lundquist suggested installation of a delay mechanism or rewiring of the overload circuit to eliminate complete high voltage cutoff when a momentary overload occurred.

As a result, William A. Roden, a manufacturing development engineer in Dept. 491-0, designed a unique overload delay circuit module for use in the high voltage section of the electron beam welder.

This provides an adjustable time delay inversely proportional to the amount of beam current overload. Any beam current in excess of the preset limit of 500 milliamperes must persist for a longer duration than the delay time to trip the overload circuit and disrupt the high voltage.

Use of the new circuit for elimination of "arc outs" that have caused weld defects in the past is expected to save Convair $8,566 a year.

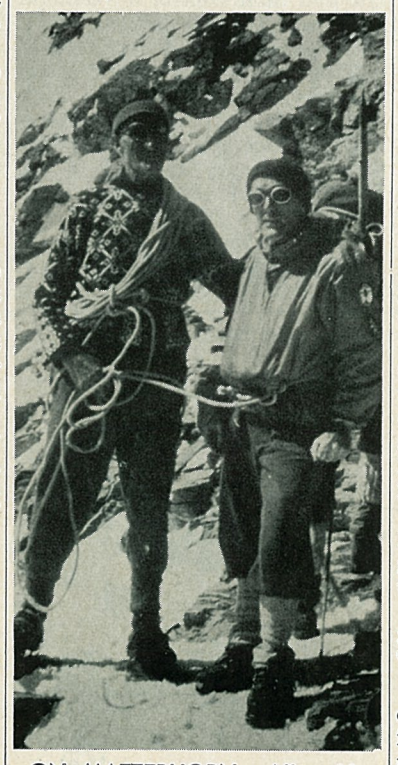
62-Year-Old Guide

Snowstorm Halts Engineer's Climb Up Matterhorn Ridge

Allen Van Norman, a senior structures engineer in Convair's Dept. 966-4, recently fulfilled an ambition of many years by climbing the Hornli Ridge of the Matterhorn in Switzerland to the 13,000-ft. level.

Van Norman made the climb after going to Europe as a leader for 22 Sierra Club members for three weeks of climbing in the Tirol in Austria, the Dolomites in Italy and the Bernese Oberland in Switzerland.

He then spent five days in Zermatt, Switzerland, at the base of the Matterhorn and had to demonstrate his climbing ability on the lower Riffelhorn and wait for a break in the weather before receiving authorization for his two-day venture on the Matterhorn.



ON MATTERHORN—Allen Van Norman of Convair, right, and his guide, Leo Summermtter, are shown as they climbed Hornli Ridge of Matterhorn.

Unfortunately, he and his Swiss climbing guide, Leo Summermtter, were caught in a snowstorm and high winds and had to turn back without reaching the 14,780-foot peak of the Matterhorn, which is in the Pennine Alps on the border between Switzerland and Italy.

"It's not an easy climb even under the best of conditions," Van Norman commented. "You are 'on the ropes' all the way up."

Van Norman said he was fortunate since no climbers had been permitted on the Matterhorn for 10 days due to weather conditions before he received permission for the climb. Summermtter, a 62-year-old, 6-ft. 4-in. mountaineer, had climbed the Matterhorn 276 times.

Van Norman has been climbing as a hobby for 20 years and has managed a two-week Sierra Club camp in the Sierra Nevadas each summer for the past nine years. He has been a Convair employe 25 years.

He and his wife were among 160 Sierra Club members in eight groups who made a charter-flight to Europe.

SCHOCH PROMOTED TO GUARD MAJOR

Marvin G. Schoch Jr., Convair engineering electronic technician in Dept. 574-1, has been promoted to the rank of Major in the 40th Armored Division, California Army National Guard. Schoch serves as intelligence officer of the 3rd Brigade, headquartered in San Diego.



SAFETY RECORD—Trophy for Convair employes at Vandenberg AFB for three years without lost-time accident is presented by Grant L. Hansen, right, vice president-launch vehicle program, to D. L. Fagan, WTR operations manager. Presentation was made at supervisors meeting at Vandenberg.

Convair Team at Vandenberg Honored for Safety Record

Convair employes at Vandenberg AFB recently completed three years and more than four million manhours without a lost-time accident.

A trophy in recognition of the outstanding record was presented to Donald L. Fagan, Convair WTR operations manager, and Glenn Berg, safety engineer, for the employes at Vandenberg early this month by Grant L. Hansen, vice president-launch vehicle programs.

Maj. Gen. H. E. Humfeld, commander of the 1st Strategic Aerospace Division at Vandenberg, has commended members of the Convair organization at the base "for a job well done."

"You and the Convair team can be justifiably proud of the achievement of your three year accident-free record at Vandenberg," he said in a letter to Fagan.

Fagan said that, despite the feeling of pride in the new record, Convair employes at Vandenberg realize they did not reach the goal unaided.

"This record was reached while we worked on your base, under the traffic laws of the base and in accord with base safety procedures," he wrote General Hunfeld.

Col. B. G. Parks, commander of the Test Site Office of the Air Force Contract Management Division at Vandenberg, has called Convair's record of more than four million manhours without a disabling injury "complete evidence that your safety program has excellent management."

"I appreciate your accomplishments and request your continued leadership in the field of accident prevention," he wrote Fagan.

Col. Parks also noted that the number of base traffic citations issued to personnel of major contractors at Vandenberg from Jan. 1 through Oct. 21 ranged from a high of 8.09 per 100 employes to a low of 3.11.

"Knowing about your outstanding safety record, I was not surprised to find Convair division had the lowest rate of 3.11," he said. "This, of course, is no coincidence. The low traffic citation rate is an indicator of your success in safety motivation."

A Convair-produced film strip on the record has been shown by TV stations in Santa Maria, Santa Barbara and San Luis Obispo. The film was made by S. H. Griffin Jr., Convair photo coordinator at Vandenberg, and the script was written by E. L. Genest, communications representative.

McCann Named Aerospace Medicine Chief

Dr. John P. McCann, a retired Air Force colonel and former deputy surgeon for the USAF Air Training Command (ATC) at Randolph AFB, Texas, recently assumed new duties as chief of the aerospace medicine group of Convair division's life sciences section.



Dr. McCann

He is responsible for directing all research and development activities within the aerospace medicine group. The major goal of this research is to provide bio-engineering design criteria for manned systems.

Dr. McCann retired from active duty Aug. 1 after more than 24 years service and was one of the few Air Force medical officers to hold both pilot and flight surgeon ratings.

He was awarded the first oak leaf cluster to the Legion of Merit for his many contributions to the improvement of health standards, medical education and flying safety for ATC.

Dr. McCann had been on active duty in the Air Force since 1942 except for a 39-month period from 1945 to 1949 when he attended Marquette University School of Medicine.

He had an internship in internal medicine at Tripler General Hospital, Honolulu, holds a master's degree in public health from Harvard University and is a graduate of the Armed Forces Staff College. He has had duty as a medical officer with almost every major air command and had been assigned to ATC headquarters since 1961.

Dr. McCann is a diplomate of the American Board of Preventive Medicine in Aerospace Medicine and a fellow of the American College of Physicians and American College of Preventive Medicine.

CHARGER TICKETS GO ON SALE DEC. 12

Reduced-price tickets for the San Diego Chargers 1:30 p.m. Dec. 18 game with Kansas City will be on sale Dec. 12 through 15 at all employe services outlets. Cost is $2.50 — a $1 saving.

Data Products Sales Reps Trained For Market Push

Nine sales representatives recently added to Stromberg-Carlson Data Products' national sales force early this month concluded a three-week training period on Data Products operations and products in the first formal sales indoctrination conducted at the San Diego division.

Especially emphasized was Data Products' newly-introduced Micromation system, an entire family of compatible equipment that turns computer output into readable text at electronic speeds and makes it readily available to anyone who uses it, explained Howard Jacobs, Data Products director of marketing.

The first group of Data Products commissioned salesmen, all experienced computer sales personnel, are forerunners to others to be added in Data Products first major expansion of its sales representatives out in the field. As many as ten will be added each quarter and trained on-site at Data Products' San Diego facility, according to present plans, Hal Holmerud, manager of marketing-education and training projected.

At San Diego for the training were Peter Claverie, systems analyst,; Tom Kent and George Kabus, sales representatives, assigned to the Washington, D. C., office; Gene Blechman, Los Angeles office; Bob Higgins, systems analyst, and Hiram Linder, sales representative, New York office; Joe Tracy, Oklahoma City office; and Jay Crane, Chicago office.

Managers in charge of district sales offices are: Southeast District, Washington, D.C., J. J. Kalagher; Northeast District, New York City, H. G. Cooper; Midwest District, Chicago, W. B. Grawe; South Central District, Oklahoma City, M. A. Ramahi; Western District, Los Angeles, S. A. Jaskol. R. E. Mattas heads the sales force at Stromberg-Carlson/New Orleans location.

William Olson Wins 'Man of Month' Award

Convair Management Club's cost reduction "Man of the Month" award for October was presented to William Olson, supervisor of procurement quality assurance Dept. 144-2.

John D. Milling, Convair division controller, made the presentation and commended Olson for initiating 17 cost reduction and value control projects this year that will save the division an estimated $357,598.

Olson, a Convair division employe since 1946, has as a personal goal the completion of at least one cost reduction or value control project each month.



S-C SALES "GRADUATES"—Hal Holmerud, Stromberg-Carlson Data Products marketing manager-education and training, and I. L. Kemper, Data Products manager of operations, hand certificates of graduation to first "class" to go through formal sales training at San Diego division. Seated around table, from left, are Jay Crane, Joe Tracy, Hiram Linder, George Kabus, Tom Kent, Pat Brent, Peter Claverie, Bob Higgins, Gene Blechman.

Mgt. Club Members Will Watch Gulls

Management Club members at Convair will see the San Diego Gulls meet the Los Angeles Blades in the new Sports Arena tomorrow night (Dec. 1) at special reduced price. Reserved seats for members, families, and guests are $1.75 each from Management Club Boosters.

Ranscht Takes No. 1 In Master Class

Warren Ranscht nosed R. E. Schneider for first place in master class in the Convair Pistol Club's .22 caliber Camp Perry match Nov. 13 at the San Diego Police Pistol Range.

Ranscht shot 297, 17x and Schneider fired 297, 11x. Bill Dittmann's 286 topped W. G. Walker's 283 in expert class.

In center-fire Short National competition, Ranscht fired 287 to again take first. Jim Halfacre was second at 265 and Schneider third with 260.

R. A. Sutton, Dept. 961-7, and Ralph Picard of Electronics-SD won turkeys in a luck shoot.

The club's last shoot of the year will be at 9:15 a.m. Dec. 11 at the Police range. An intercompany match against Solar shooters is planned for early next year.

Employes interested in target pistol competition on an informal basis can obtain additional information about the club and its activities by calling Joe Williamson, commissioner, at LF ext. 656, or Roscoe Anderson, president, at KM ext. 3593.

Steve Berry Now Riding Commissioner

Steve Berry has been appointed commissioner of the CRA Riding Club to succeed Joe Pena, who has resigned after four years of heading the horsemen's group, J. K. Field, chief of employe services, announced.

Berry has been active in the club since he joined the Company at the former Astronautics division over six years ago. He served as president for the 1964 term and his wife, Shirley, was membership chairman during the same period.

They are ardent horsemen and intend to train their young daughter, Laura, 7, to be a competent rider.

Berry is now located at the Lindbergh Field plant in production engineering planning.

Women Golfers Vie At Mission Bay

Katheryn Hagley won Flight A trophy and Jerrie Cooper, Flight B, in the General Dynamics Womens Golf Club tourney Nov. 12 at Mission Bay course.

Flight A gift certificate winners were Jean Mishall, Clara Granat, Gerry Swanson, and Mabel Dunn. Iris Foster won the turkey for sixth place.

Winning certificates in Flight B were Willa Porter, Jean Hawthorne, Nell Bartlett, Edith Mellett. Barbara Bugbee won the turkey.

A Christmas party will be held Dec. 8 at Town and Country Hotel with cocktail hour at 6 p.m. and dinner at 7:30 p.m.

Bridge Winners Named for Nov.

Margaret Grindstaff and Mitzi Rustad, and Alex Biro and Sally Ishihara took North-South and East-West honors, respectively, in CRA Bridge Club play Nov. 11 at the CRA Clubhouse.

Winners on Nov. 18 were C. A. "Tony" Miller and Alex Biro, North-South, and Janet and Dave Borkenhagen, East-West.

Bridge Club members have scheduled a Christmas party at 5:30 p.m. Dec. 22 at the Miramar NAS Officers' Club.

CRA Basketball Leagues Start Play This Week

CRA basketball teams go into action this week with first league games for the fast-break league scheduled tonight (Nov. 30) and first tilts for slow-break players tomorrow (Dec. 1).

In fast-break play R&E will meet Flight Control at 6:30 p.m.; Underbrush vs. Hot Shots, 7:40. Centaur will play Cosmo Bums Saturday (Dec. 3) at noon.

Slow-break openers tomorrow are Bean Counters vs. LF Jets, 6:30; Gyros vs. Plastics, 7:40; Bullet Biters vs. Stromberg-Carlson, 8:50 p.m.

Next week's games are: Fast-break—Dec. 7, Underbrush vs. Centaur, 6:30; R&E vs. Hot Shots, 7:40. Dec. 10, Flight Control vs. Cosmo Bums, noon.

Slow-break—Dec. 8, Gyros vs. LF Jets, 6:30; Bean Counters vs. Bullet Biters, 7:40; Plastics vs. Stromberg-Carlson, 8:50.

All games are played in Balboa Park's Muni Gym on Court 3. Spectators are welcome without charge.

Ralph Way Leader With Par 72 in Golf

Ralph Way of Dept. 400 scored low gross, and Bill Brask, Dept. 454, low net, in the CRA golf tournament at Coronado, Nov. 12-13. Way shot a 72 and Brask, a 67.

Other low scorers in the 0-13 flight were C. Williams (Dept. 140), low gross runner-up, 79, and Mark Pruitt (Dept. 957), low net runner-up, 68.

14-17 handicap flight winners were: Bill Whitley (Dept. 584), low gross, 81; Mel Doerr (Dept. 041), runner-up, 84; N. Montallegro (Dept. 758), low net, 68; Ted Anderson (Dept. 059), runner-up, 69.

18-and-over: W. L. Danshaw (Dept. 553), low gross, 86; Jack Johnson (Dept. 587), runner-up, 88; Scotty Rutherford (Dept. 041), low net, 65; Bill Sileneck (Dept. 015), runner-up, 69.

Tickets Are Prizes In Dec. 14 Drawing

Six tickets for upcoming San Diego Gulls games will be prizes in CRA's second drawing Dec. 14. Ten tickets will be awarded (in multiples of two) for each of the six home games from Dec. 16 through Jan. 7.

Employes may enter by depositing a slip of paper with their name, division, plant, department number, shift and plant phone extension on it.

Deposit boxes will be at Convair, Stromberg-Carlson and Electronics-SD employe services outlets, the Bldg. 51 engineering mailroom at Lindbergh Field, H. C. Medearis' office at Air Force Plant 19 and CRA Clubhouse.

Mgt. Club Golfers Shoot for Turkeys

Golfers of Convair Management Club shot for turkeys in a special tournament Nov. 19 at the Golden Valley Circle Golf Club.

Bill Matlock and Lou Gibson held low gross and low net respectively in Flight 1, 0-12 handicap.

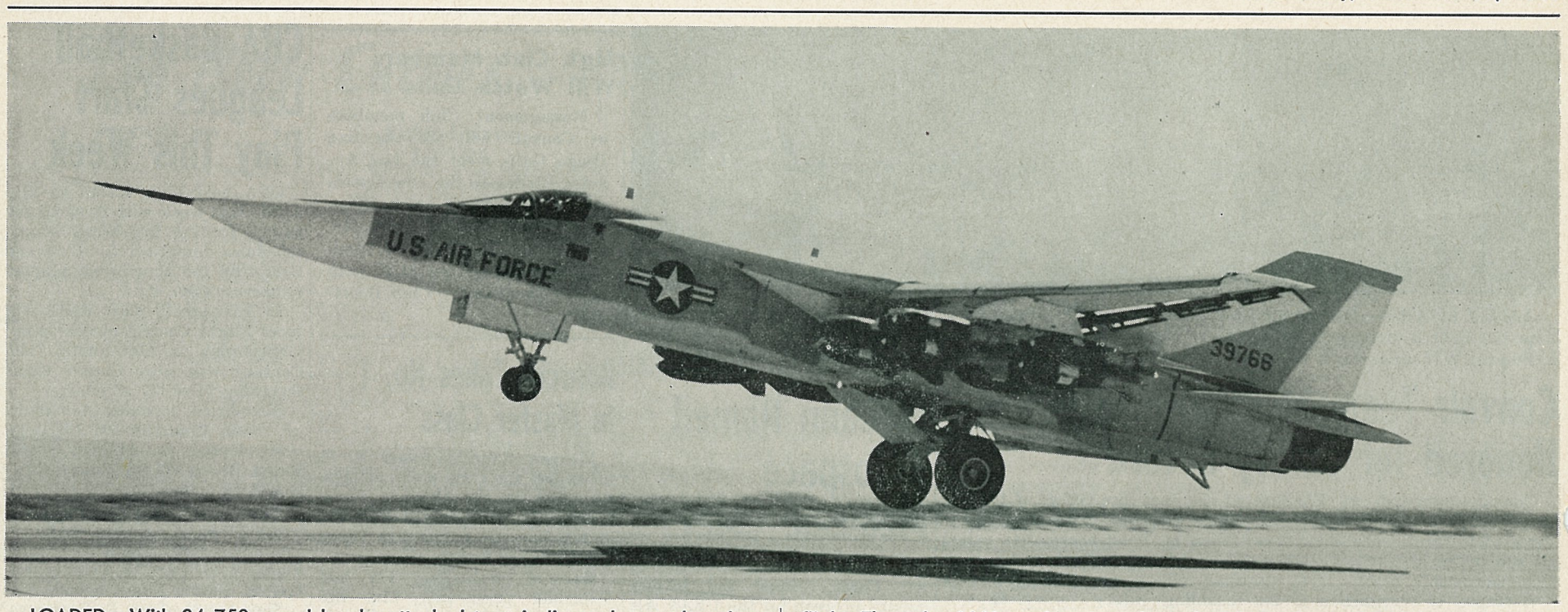
Flight 2, 13-18 handicap, winners were Tobe Hunley, low gross, and Marion Hill, low net.

Winners of Flight 3, 19-and-over, Hugh Kobrick, low gross; Fred Munson, low net.

Prizes in the blind bogey match went to Jerry Swarts, Frank Kany, and Russ Davis.

LF TOOL STORE IS RELOCATED

Employes tool store at Lindbergh Field plant has been relocated in the north end of Bldg. 32. The store, operated by Western Metal Supply Co., is open Mondays through Fridays, from 8 a.m. to 3:45 p.m., except for a half-hour lunch period.



LOADED—With 24 750-pound bombs attached to swiveling pylons under wing. F-111A No. 1 roars aloft from Edwards AFB. F-111s are nearing 2,000th hour of flight. Through mid-November, test planes had logged over 1,960 hours on 1,170 flights.

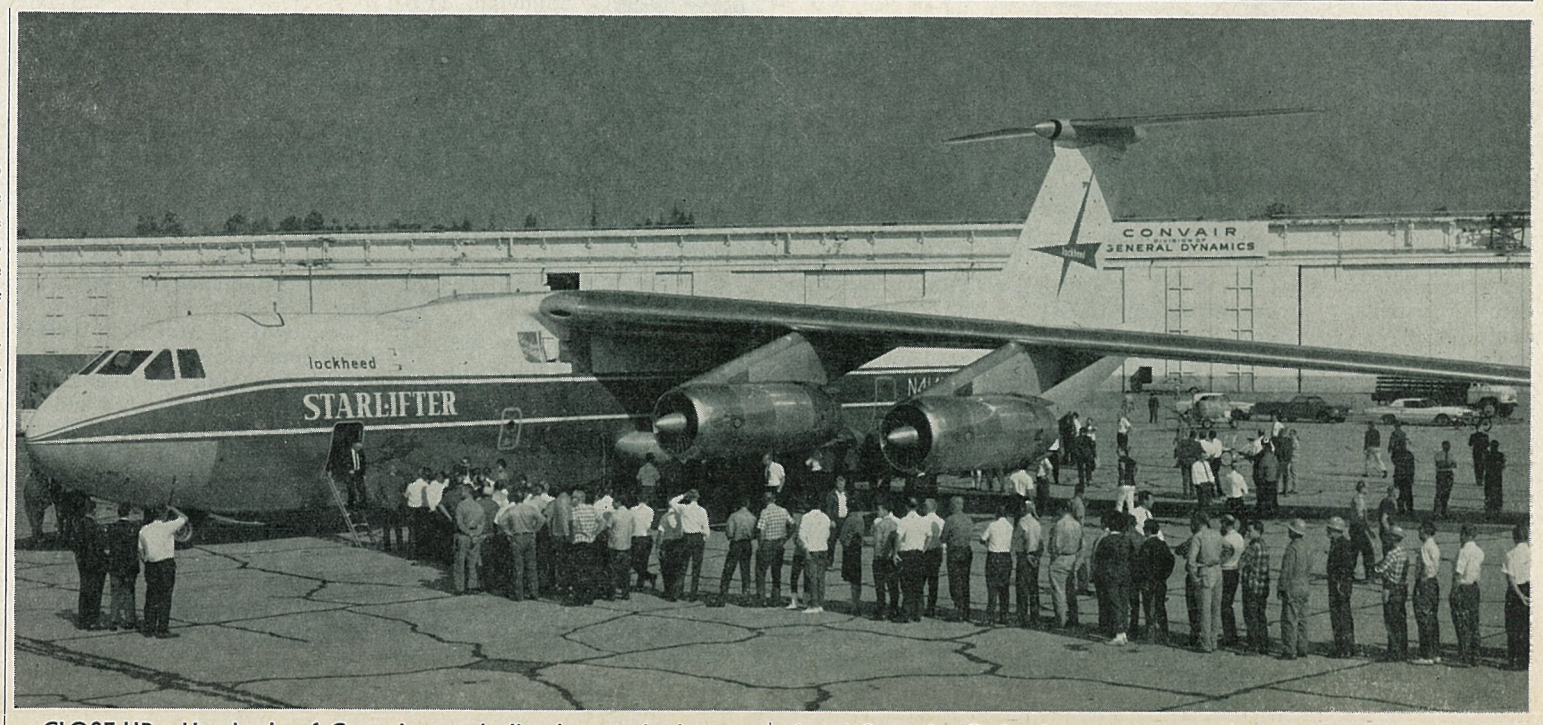
Convair 990 Chases Sun

NASA's Galileo, a Convair 990 jet laboratory, was one of the five jet planes which chased the Nov. 12 eclipse of the sun across South America to study the corona of gases surrounding the sun.

Thirty-five scientists, including Dr. Guido Munch, staff member of the Mt. Wilson and Palomar observatories, were aboard the 990 as it streaked across the continent from Ecuador to Brazil, and over the Atlantic Ocean. The solar eclipse was total only over southern Brazil.

Scientists aboard the planes were measuring, among other things, the effects of a total eclipse on radio communications. Information from the eclipse could have a bearing on future space travel and satellite development, according to scientists.

Data gathered will be under evaluation for three years.



CLOSE-UP—Hundreds of Convair people lined up to look over huge C-141, Air Force jet cargo transport, parked outside Lindbergh Field building for several hours Tuesday, Nov. 15. Lockheed-Georgia Co.'s demonstrator craft was on tour throughout country. Convair is building empennages for C-141 under subcontract from Lockheed-Georgia.

Framed Atlas Photo Convair Gift to Fort Worth Division

Convair division has presented a 30x40-inch framed photograph of the Atlas to Fort Worth division in appreciation for assistance in the Atlas and Centaur programs.

The photograph was presented by L. I. Medlock, director of reliability control for Convair, to J. T. Cosby, Fort Worth division vice president-111 programs, after Cosby addressed Convair Management Club members Nov. 10 in San Diego.

Fort Worth has fabricated booster engine thrust structures for more than 500 Atlas missiles and launch vehicles and has been constructing interstage adapters and jettisonable insulation panels and nose fairings for use with Centaur vehicles.

Some aerospace ground equipment (AGE) for use with Convair space vehicles also have been produced at Fort Worth and a shaped charge separation system for use with Centaur panels and fairings was developed there.

W. A. Bratton, project engineer at Fort Worth, has served as coordinator.

Many of the manufacturing tasks for Atlas and Centaur previously performed by Fort Worth division are to be accomplished by Convair division in the future.

Engineers Deliver Paper at Congress

Three Fort Worth division engineers presented a paper at the recent National Metal Exposition and Congress in Chicago.

Delivering the paper on "A Functional Study of Metal Matrix Composites" were: Bill Kaarlela, project engineering metallurgist; W. S. Margolis, senior engineering metallurgist; and H. R. Thornton, project structures engineer.

Pomona Man Named To National Office In Metals Institute

John H. Rizley, supervisor of materials research and process engineering at Pomona division, has been elected vice chairman of the Institute of Metals of the American Institute of Mining and Metallurgical Engineers (AIMS).

He will take office during the annual national meeting of the organization in February, 1967, in Los Angeles. If tradition holds, he will be chairman of the Institute of Metals for one year beginning in February, 1968.

Rizley was formerly chairman of the Structural Materials Committee of AIME and has served on the executive committee during the last two years.

He is a registered professional engineer and also holds membership in the American Society for Metals and the American Institute of Aeronautics and Astronautics.



PRESIDENTIAL TALKS—Presidents of GD Management Clubs met with NMA directors and Corporate officials in Pittsburgh recently. Seated, from left: F. M. Callan, FW; J. J. Kenna, FW; R. W. Perrin, Electronics-SD; J. N. Mattson, Electronics-Rochester; G. O. Watkins, Electronics-R. Standing, from left: John Payne, FW; Len Jella, Convair-Vandenberg; Ralph Bauman, Convair; Grover Tate, FW-Edwards; Tom Croft and Jim Budros, Corporate Headquarters; Ira Sykes, Pomona; Larry Sweeney, Convair.

Ardmore, Okla. Facility Now Part of Stromberg-Carlson

General Dynamics' Ardmore, Okla., facility (**GD/NEWS**, Aug. 10, 1966) now is part of Stromberg-Carlson.

Dause L. Bibby, S-C president, said the addition is part of an expansion program.

The facility involves 85,000 sq. ft. of floor space and product lines have been electrical and electronics equipment, mobile training units (for the Fort Worth division-built F-111) and fabric shelters. Bibby said these will be continued and new fields for commercial business explored.

Clyde Ford, facility manager, will continue to direct plant operations. Present employment of 165 is expected to increase by 50 per cent during next year.

Employes were notified of the development by Bibby in a special taped recording broadcast over the facility's loud speaker system.

S-C, with main plant in Rochester, now has additional facilities at San Diego (Data Products) and at Charlottesville, Va.

Canadair C-5A Work Upped

Canadair Limited of Montreal has received an export order in excess of $19 million from Lockheed-Georgia Co. for leading edges and leading edge slats for the giant C-5A transport, it was announced by Frederick R. Kearns, Canadair president.

This brings the total orders received by Canadair for work on the C-5A to approximately $47 million.

Leading edges are 98 feet in length and, at the inboard end, are 12 feet wide.

Canadair has previous orders for aft cargo doors, main landing gear fairings and doors, wing tips and ailerons.

The orders are all for 58 ship sets and are tied in with options for 57 additional sets for a total of 115.

Navy Sonobuoy Order Goes to Electronics

A production contract for sonobuoy radio system test sets has been received by Electronics division at Rochester from the U. S. Navy, Parker Painter Jr., general manager, announced.

The contract price is more than $500,000 for these radio test sets that are used in flight-line checkout or field-shop maintenance of antisubmarine warfare detetcion systems used in ASW aircraft. Delivery of the test sets is to begin in June 1967.

GD MAN CITED IN VIET NAM

An electronics division engineer, George G. Flansburg, has been cited for his performance of duty while assisting the 701st Maintenance Battalion of the First Infantry Division in Viet Nam.

His work involves installation of military radios and training personnel.

Flansburg is a field service engineer and has been in Viet Nam since early September. The AN/GRC-106 combat radio is made in Rochester and Flansburg has directed installation of 12 of them and trained more than 80 officers and enlisted men of the 701st in their operation.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 19, No. 25 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, December 14, 1966

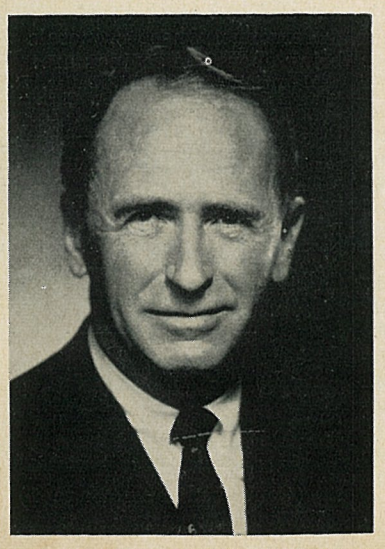
Christmas Message From Roger Lewis

"'On earth peace, good will toward men,' the message of Christmas, has never had more meaning than today. Many of our people are working to develop the means for keeping peace; many more are working to translate the revolutionary advances in science and technology into the improvement of human life.

"This is a twofold responsibility that will remain with us for many years, and it gives a deeper meaning to our daily work.

"Our gratitude goes out to those who are most directly involved in the effort of keeping the peace—our brothers, our sons and our husbands in the armed forces. I join you in your prayers for their safety and well-being and in the hope that the work of men of good will will bring rapidly closer the day when the message of this season will be fulfilled for all.

"To each of you and to your families I wish a joyous Christmas and a rewarding New Year."



Roger Lewis
President

CSTS Wins October Craftsmanship Award

Employes in Dept. 973 at NASA's Combined Systems Test Stand at Kearny Mesa won Convair "Craftsmen of the Month" honors for the first time in October with a record of almost 73 per cent improvement in performance.

The 60 employes in the department reduced number of defects per 100 manhours worked from 1.78 for the previous six months period to .48 for the past three months. This gave the department a 121.9 quality index.

Gerry G. Christ, acting chief of CSTS operations, said use of a new "team approach" to clean and damage inspection of Atlas-Centaur 12 vehicles during the August through October competition period may have been instrumental in helping win the award.

CSTS personnel have been included in the Convair Craftsmanship competition since October, 1965. Each employe is to receive a letter of commendation from Jack L. Bowers, Convair manager.

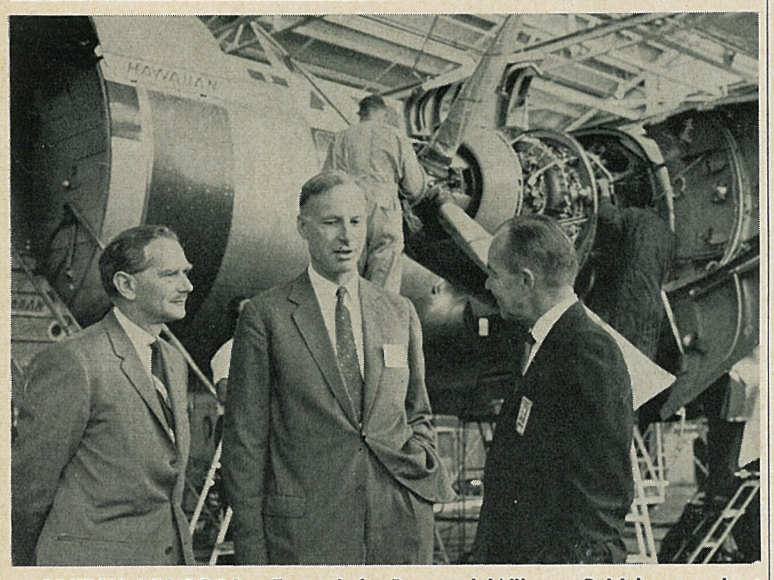
Runner-up in the October standings was Dept. 454, the plaster, plastics and foundry organization at Kearny Mesa that had won Craftsmanship honors the previous month.

Dept. 454 had a 117.4 quality index, based on quality levels of .12 defects per 100 manhours for the six-month period and .05 for the past three months.

Highest rated departments at Lindbergh Field for the month were metalbond, plastics and trim Dept. 019 with a 108.1 quality index and sheet metal Dept. 001 with a 107.8 index.

Vandenberg AFB's perpetual Craftsmanship trophy for October went to employes of shipping and receiving, Dept. 985-35, and was presented by Ernest A. Millar, chief of operations support.

Dept. 985-35 has won the trophy three times this year and taken Craftsmanship honors seven times since the program began in 1964.



BRITISH VISITORS—From left, Bernard Wilcox, British consul at Los Angeles, and John Chadwick, minister commercial from British Embassy, Washington, D. C., are briefed on Convair programs during Nov. 30 visit by W. L. Van Horn, plant manager of Lindbergh Field operations.

Convair Lunar Orbiter Role Earns Praise

Lunar Orbiter 2, started on its flawless flight to photograph possible Apollo astronaut landing sites on the moon by Convair division's Atlas SLV-3 No. 5802 Nov. 6, has transmitted a detailed photograph of the moon crater Copernicus that has been called "the picture of the century."

The photograph, showing rubble-strewn crater walls and peaks rising 1,000 ft. or more above the crater floor, was taken as the Orbiter passed 28.4 miles above the lunar surface.

Clifford H. Nelson, Lunar Orbiter project manager for NASA's Langley Research Center, in a recent telegram to Convair division asked that "our heartiest congratulations" be conveyed to "your project team for their outstanding effort and success in support of the Lunar Orbiter 2 launch."

Nelson said the spacecraft completed its first photographic site examination and returned the film data to the Madrid, Spain, Deep Space Network station.

"Your continued effective effort in going forward with our program has the deep appreciation of the Lunar Orbiter project and the Langley Research Center," Nelson said.

"The ETR Atlas reviews, in particular, provided by Messrs. Andrew Kalitinsky and J. E. Von der Wische, etc., were helpful in increasing our knowledge and confidence."

Kalitinsky is Convair's assistant program director-launch vehicle engineering and Von der Wische is Convair program manager for NASA Atlas SLV-3 programs.

Lunar Orbiter was sent into space by the Atlas SLV-3 booster and two burns of an Agena second stage vehicle.

Zero Gravity Study Ordered By NASA Center

Convair division has received a contract for approximately $100,000 from NASA's Langley Research Center for a one-year study to define a test program for determination of zero-gravity capabilities of life support processes and components contained in the Center's Integrated Life Support System (ILSS) test bed.

Included in the four-task project will be a study of gravity-sensitive ILSS components and processes, a determination of test data requirements to verify performance predictions, and evaluation and selection of test methods to meet test data requirements and preparation of test plans, schedules and cost estimates. The program will be conducted within the Convair life sciences section.

J. C. Ballinger, a life support engineering design specialist, will be project leader for life sciences Dept. 592-0. J. R. Burnett of Dept. 592-0 and G. B. Wood of Dept.

(Continued on Page 2)

Next GD/NEWS Issue Will Be on Jan. 11

Because of conflict with year-end holidays and reduction in production time, GD/NEWS will skip its Dec. 28 issue. Publication will resume with the Jan. 11 issue.



HONORS—President Lyndon B. Johnson presided at awards ceremony at LBJ ranch recently. From left: James Webb, NASA administrator; George M. Bunker, president of Martin Marietta Corp.; James S. McDonnell Jr., chief executive officer of McDonnell Aircraft Corp.; Jack L. Bowers, general manager of Convair division, representing General Dynamics; Daniel J. Haughton, president of Lockheed Aircraft Corp., President Johnson.

LBJ Presents Gemini Awards

Roger Lewis, president and chairman of the board of General Dynamics, and Jack L. Bowers, Convair division general manager, have received NASA Public Service Awards for "outstanding contributions" as key leaders in the government-industry team in the Gemini space flight program.

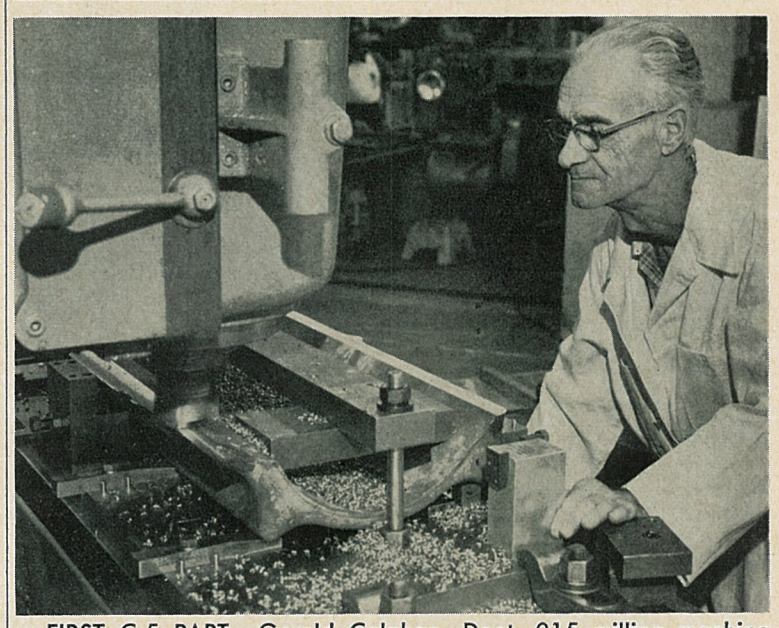
President Lyndon B. Johnson presented the award for Lewis to Bowers in ceremonies Nov. 30 at the LBJ Ranch in Texas.

Bowers received his award the same day in a ceremony at the Manned Spacecraft Center in Houston at which Richard W. Keehn, Convair Atlas SLV program manager, and Kenneth E. Newton, Convair operations manager at the Eastern Test Range, also received NASA certificates.

Keehn was presented a Certificate of Commendation from the Manned Spacecraft Center for his "advancement of manned space flight through hardware developed for the Gemini program." The presentation was made by Dr. Robert R. Gilruth, MSC director.

Newton's Certificate of Appreciation from NASA's Kennedy Space Center was for "outstanding service to the manned space program and technical competence exhibited during the Gemini launch operations." It was presented by Dr. K. H. Debus, Ken-

(Continued on Page 2)



FIRST C-5 PART—Gerald Calahan, Dept. 015 milling machine operator at Convair's Lindbergh Field plant, machines first part for C-5 empennage, one of the pivot fitting parts for vertical stabilizer.

Pylons, Electronics Bay Production Proceeds

First major F-111 components being built at Convair for its Fort Worth sister division were factory complete and ready for shipment this week as Convair's F-111 assist production work progresses.

"Convair's F-111 production is progressing satisfactorily in all areas," W. S. Stroud, Convair program manager for F-111 aircraft elements, said.

First ship's set of armament pylons went to the paint shop late last week in preparation for shipment, probably this week, to Fort Worth. First forward electronics equipment bay also is factory complete.

The first stabilization boom, which attaches to the rear of the crew capsule to stabilize it during ejection, is due out next week.

(Continued on Page 2)

Log Book Entries

Awards

Employe Suggestion awards approved for the week ending Nov. 25.

Dept. 015, H. A. Wilson; Dept. 041, J. L. Killeaney; Dept. 143, D. M. Smith; Dept. 250, W. H. Apple, B. A. Rusk; Dept. 715, E. S. Budzinski, B. Fissell; Dept. 732, J. W. Hart; Dept. 759, N. B. Byrd, G. D. Lundquist, P. P. Standley; Dept. 957, J. A. Maddon, M. Mondragon, M. W. Pruitt; Dept. 972, A. J. Augustenborg, M. Prince; Dept. 973, G. Munoz; Dept. 974, E. L. Carnes, L. W. Howerton; Dept. 985, J. D. Hammer; Dept. 987, T. A. Cooksey, R. A. Jacobs, and J. F. Mayer (eight joint awards), B. L. Ennis, L. M. Hernandez, J. W. Magnuson (two awards), F. J. Mathis, L. C. Palmer, S. Robles, C. E. Roach, L. Spurgeon.

Employe Suggestion Awards approved for the week ending Dec. 2.

Dept. 002, H. B. Bender; Dept. 041, C. W. Tabor; Dept. 059, S. J. Sorokie; Dept. 124, C. N. DeMund; Dept. 125, T. Balistreri; Dept. 141, G. E. Stachwick; Dept. 143, V. F. Hirsch, V. C. Peterson, R. R. Reekers; Dept. 146, Dorothy F. McEwen; Dept. 193, R. C. Firestine; Dept. 732, E. T. Gregory; Dept. 733, E. E. Portillo; Dept. 780, H. Akers, J. L. Helmken, G. Lokey; Dept. 955, I. U. Eggert; Dept. 979, J. E. Robinson; Dept. 985, H. A. Kamman; Dept. 987, O. J. Sonsteng.

Papers Presented

BRADY—J. F. and B. D. NEWSOM, Dept. 592-0. "Vestibular Contingencies in Display and Control Design for Rotating Environments," Human Factors Society's 10th Annual Meeting, Anaheim, Calif., Nov. 1-4.

HEID—T. L., Dept. 587-1. "Anticipated Service Life of Jet Transport Structure," Air Transport Association, Los Angeles, Nov. 17.

KROPP—C. J., Dept. 572-1. "The Development of a Superior Titanium-Base Alloy for Cryogenic Application," Metallurgical Society of AIME's 1966 Fall Meeting, Chicago, Ill., Nov. 2.

LARSON—A. V., Dept. 596-0. "Probe Ion Velocity Distribution in Plasma Accelerator Exhausts," Annual Meeting of American Physical Society's Division of Plasma Physics, Boston, Mass., Nov. 2-5.

PETRE—J. W., Dept. 506-0. "Oceanographic and Navigation Buoy Development," Oceangraphic Equipment Symposium of Bureau of International Commerce of the U.S. Dept. of Commerce, Frankfurt, Germany, Nov. 4.

SMITH—C. R., Dept. 587-1. "Experimental Mechanics in Design," 26th National Convention of Society for Nondestructive Testing, Chicago, Ill., Nov. 2.

Papers presented at IEEE Symposium on Automatic Support Systems for Advanced Maintainability, St. Louis, Mo., Nov. 7-9.

JAEGLY—R. L., 580-1. "The Application of Malfunction Analysis Data Generated By Discrete Network Simulation."

JIRAUCH—Dorthea H., Dept. 595-0. "Software Design Techniques for Automatic Checkout.

Papers presented at AIAA's 3rd Annual Meeting and Technical Display, Boston, Mass., Nov. 29-Dec. 2:

BUTSKO—J. E., Dept. 583-1. "Prediction of the Subsonic Base Drag of Hypersonic Re-Entry Vehicles."

DORAIN—M. F., Dept. 596-0. "A New Technique for Scheduling and Simulation of Manned Orbital Operations."

KING—C. D., Dept. 592-0. "Closing the Ecology."

LYNCH—R. A., Dept. 581-5. "The First Manned Lifting Entry Vehicle Configuration."

SHAFER—W. A., Dept. 592-0. "Systems Management Concept Applied to the Development of Artificial Organs."

In-Plant Training

ORIENTATION

NEW EMPLOYES—Educational services staff, Lindbergh Field, ext. 491. Bldg. 14 auditorium, Wednesday, Jan. 11, 4:30 p.m.; Tuesday, Jan. 10, 8 a.m. Kearny Mesa, ext. 1931, Bldg. 17, Room 7, Mondays, Dec. 19 and Jan. 9, 8 a.m.

PROFESSIONAL/TECHNICAL

PROGRAMMED SELF-STUDY—A limited number of programmed texts covering many subjects are available in the educational services office, Bldg. 17, Kearny Mesa. These may be checked out for home study. Office hours are 8 a.m. to 5 p.m., KM ext. 1931.

JUNIOR COLLEGE SPRING SEMESTER—Job related and trade extension courses may be held on company premises. Interested persons should send an AVO now to Richard Forrest, Mail Zone 130-30 KM. Course suggestions: Blueprint reading, design drafting, elements of structural design, electronics (several), industrial safety, introduction to digital computers, mathematics (electronics, technical or shop), transistors (basic and advanced), technical writing, supervision, and many others.

Births

CONVAIR

MILLS—Daughter, Julie Marie, 7 lbs., 10½ oz., born Nov. 28 to Mr. and Mrs. Melvin Mills, Dept. 574-2.

Deaths

CONVAIR

GUERRA—Manual, Dept. 250-4. Died Dec. 1. Survived by wife, Mary A., and five children, Rudolfo, Robert, Irene Elizabeth, and Barbara; and one grandchild.

General Dynamics News

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Convair division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P.O. Box 1950, San Diego 92112.

Service Emblems

CONVAIR

Service emblems due in December.

Thirty-five year: Dept. 031-0, E. T. Gahlbeck.

Thirty-year: Dept. 031-0, A. A. Duncan; Dept. 041-0, M. M. Doerr; Dept. 059-1, H. B. Gimber.

Twenty-five-year: Dept. 001-0, P. Eramo, L. S. Meland, W. E. Senay; Dept. 002-0, W. J. Day; Dept. 015-0, K. B. Boers; Dept. 019-0, R. M. Joseph; Dept. 031-0, R. J. Collette; Dept. 041-0, H. G. Baumgarten, B. Flores; Dept. 059-1, R. W. Chambers; Dept. 059-3, V. V. Barghols; Dept. 130-1, M. J. Chilcote, E. A. Haseltine; Dept. 149-3, C. E. Boyd; Dept. 191-0, M. Johnson; Dept. 250-2, J. H. Maloney; Dept. 300-3, J. R. Morey Jr., O. C. Western; Dept. 400-1, Y. Z. Morris Jr.; Dept. 401-0, E. R. Burgess, J. A. Ross; Dept. 420-5, L. O. Miller.

Dept. 460-0, V. P. Mavrinac; Dept. 491-0, J. C. Duffy; Dept. 533-2, S. E. Beemer; Dept. 542-0, R. H. Hall; Dept. 566-3, S. Pauchnick; Dept. 572-2, W. M. Parker; Dept. 578-3, J. A. Crossman; Dept. 731-0, E. R. Stanek; Dept. 756-0, C. A. Harrington; Dept. 759-0, P. P. Standley; Dept. 833-3, C. W. Leedom; Dept. 835-1, A. J. Simington; Dept. 835-2, A. E. Mack; Dept. 835-5, C. F. Lewallen; Dept. 843-0, H. A. Adams Jr.; Dept. 860-0, N. Grand; Dept. 950-7, R. A. Nichols; Dept. 961-7, C. J. Rezek; Dept. 964-5, H. H. Waugh Jr.; Dept. 966-0, L. D. Brown Jr.; Dept. 978-3, L. H. Green; Dept. 985-4, G. W. Cooper; Dept. 987-0, G. C. Lang, S. S. Stearns.

Twenty-year: Dept. 001-0, S. Elhard; Dept. 015-0, A. W. Beckman, C. C. Byrne Jr.; Dept. 019-0, O. R. Bracey; Dept. 059-3, M. V. Fortson; Dept. 150-0, G. O. Withem; Dept. 250-5, F. A. Chavez, J. L. Heck; Dept. 400-4, B. B. Howard; Dept. 420-3, T. H. McManus; Dept. 524-3, C. P. Freeman; Dept. 544-4, W. A. Schmitz Jr.; Dept. 715-0, R. J. Koeller; Dept. 732-0, W. E. Kane; Dept. 759-0, G. W. Stacy Jr.; Dept. 835-5, J. J. Ward; Dept. 860-0, A. R. Brunner; Dept. 971-5, R. F. Stull; Dept. 985-1, J. D. Burt; Dept. 987-0, S. P. Contasti.

Fifteen-year: Dept. 001-0, A. R. Stogsdill; Dept. 015-0, I. H. Early; Dept. 016-0, D. V. Cole, S. G. Kuehni, B. M. Swanson; Dept. 031-0, F. L. McCord; Dept. 100-1, B. A. Jones; Dept. 110-1, O. H. Patterson; Dept. 113-0, R. L. Harris, C. B. Robinson; Dept. 125-0, D. T. Christian, R. M. Walraven; Dept. 127-0, H. O. Krumm; Dept. 149-6, D. V. Fox; Dept. 191-0, M. K. Kehle; Dept. 199-0, F. A. Seaborg; Dept. 250-2, E. L. Brush, G. W. Lyons II; Dept. 250-3, W. A Engelke; Dept. 250-4, G. Dixon; Dept. 300-3, L. D. Taylor; Dept. 400-3, T. M. Roush; Dept. 420-7, J. D. Beamer, M. Monji.

Dept. 454-0, H. E. Shidner; Dept. 460-0, H. M. Boyle; Dept. 508-0, M. B. Clark; Dept. 511-2, F. N. Bergen; Dept. 524-0, M. E. Cowart, C. M. Gilliland; Dept. 575-2, E. E. Whigham; Dept. 578-5, G. W. Conrey; Dept. 579-1, S. S. Sifuentes; Dept. 587-1, E. F. Quinn Jr.; Dept. 589-1, H. O. Wendt; Dept. 744-0, J. R. Johnson; Dept. 833-2, D. V. Dearmin; Dept. 835-4, V. M. Ferson; Dept. 952-0, W. A. Roberts; Dept. 957-0, D. A. Falls; Dept. 958-4, A. R. Marshall; Dept. 961-2, R. E. Kezar; Dept. 962-5, M. Ogman; Dept. 970-0, H. Lee; Dept. 970-1, R. Behlman; Dept. 978-3, R. L. Carr; Dept. 985-1, F. Fincher, B. Slot.

Ten-year: Dept. 015-0, J. J. Cole, W. Keller; Dept. 041-0, G. W. Smith; Dept. 058-0, R. L. Matthews, D. W. St. Pierre; Dept. 101-6, A. M. Akers, F. T. Danniels; Dept. 113-0, G. L. Faringer; Dept. 126-0, M. H. Davidson; Dept. 128-0, R. L. Stegall; Dept. 130-1, P. J. Gute, D. D. Hendry, D. N. Lange; Dept. 130-6, N. J. Blair; Dept. 141-2, R. D. Woodward; Dept. 143-3, H. A. Jackson; Dept. 144-2, J. A. McCoy; Dept. 146-3, E. I. Sylvester, J. R. Wilkins; Dept. 146-5, H. F. Stout; Dept. 149-2, J. V. Bartle, W. S. Brown; Dept. 170-9, H. Knight; Dept. 195-3, M. W. Rickling; Dept. 250-1, H. W. Schleibaum Jr.; Dept. 250-2, A. Cernius; Dept. 250-4, B. L. Fowler, M. C. Roberts, J. G. Salinas; Dept. 250-5, J. M. Wiley.

Dept. 401-1, M. A. Revetti; Dept. 401-5, R. R. Housh; Dept. 454-0, J. Plikshe; Dept. 460-0, W. W. Fields; Dept. 508-0, S. R. Lewandowski, H. Reynolds; Dept. 521-6, O. W. Bidwell, F. M. Conner; Dept. 524-0, A. A. Keen; Dept. 526-6, W. P. Archibald; Dept. 531-2, P. A. Kessell Jr.; Dept. 533-1, C. A. Wright; Dept. 565-1, A. Humphrey; Dept. 566-3, D. L. McCrary; Dept. 574-3, M. E. Hauk, R. W. Kabat; Dept. 591-0, A. R. Cox; Dept. 595-0, C. H. Gutzler; Dept. 731-0, P. L. Hamm; Dept. 733-0, D. J. Rogers; Dept. 756-0, R. Ledesma; Dept. 758-0, J. J. Rehm; Dept. 780-0, E. Harris; Dept. 780-1, E. R. Kays; Dept. 810-1, R. J. Archibald; Dept. 820-0, F. D. Heflin Jr.; Dept. 832-3, A. J. Bacon, T. A. Touey; Dept. 836-1, E. W. Arnold, E. K. Klumpp.

Dept. 840-0, E. F. Cox; Dept. 840-2, O. C. Gibson; Dept. 951-8, I. F. Melvin; Dept. 954-4, K. M. Lindsey, G. I. Robbins; Dept. 957-0, C. P. Beede, T. Neal; Dept. 958-6, R. S. Rock; Dept. 961-2, H. E. Wexler; Dept. 962-2, F. F. Manning; Dept. 962-5, J. Giles; Dept. 963-4, K. S. Telfer; Dept. 964-4, D. S. Ruder; Dept. 966-3, R. J. Conway; Dept. 966-4, J. H. Baker, R. A. Besse; Dept. 973-1, J. P. Ryan; Dept. 973-3, D. L. Hamilton; Dept. 978-3, P. R. Moody; Dept. 979-3, W. T. Coethe, H. F. Erich, T. S. Spivey; Dept. 979-6, C. E. Moore; Dept. 985-1, L. H. Helzer, K. R. Nelsen, G. E. Williams; Dept. 985-3, G. L. Dahle, F. B Hart; Dept. 985-4, D. L. Blanchard; Dept. 985-5, R. C. Forrest; Dept. 986-5, K. F. Snow; Dept. 987-0, F. M. French; Dept. 988-6, T. J. Henry; Dept. 988-8, J C. Setterberg.

STROMBERG-CARLSON

Fifteen-year: Dept. 85-10, T. B. Packard

Ten-year: Dept. 85-70, J. Strozyk.

Retirements

CONVAIR

BARNES—Dorothy M., Dept. 780-1. Seniority date Nov. 28, 1956, retired Jan. 29.

COVERT—P. J., Dept. 193. Seniority date Dec. 17, 1956, retired Oct. 16.

DANI—James, Dept. 142-1, Seniority date Nov. 12, 1956, retired Nov. 14.

GREGORY—Joe B., Dept. 985-1. Seniority date Oct. 23, 1958, retired Oct. 27.

MARSH—Clarence A., Dept. 147-1. Seniority date Sept. 27, 1956, retired Oct. 23.

McCABE—Charles F., Dept. 963-1. Seniority date Jan. 23, 1936, retired Nov. 22.

THOMPSON—Donald W., Dept. 532-1. Seniority date Nov. 10, 1961, retired Nov. 11.

LBJ Presents Gemini Awards

(Continued from Page 1)

nedy Space Center director, and G. M. Preston, deputy director of launch operations.

Bowers was one of four industry representatives flown from Houston to the President's ranch with a number of NASA and military officials and newsmen for the awards ceremony after Gemini 12 Astronauts Maj. Edwin E. Aldrin Jr., USAF, and Capt. James A. Lovell Jr., USN, discussed their flight at a press conference.

President Johnson presented NASA Exceptional Service Medals to Aldrin and Lovell and both he and James Webb, NASA administrator, hailed success of the Gemini program.

The President noted that the United States "acquired 1,940 manhours of pioneering and pacesetting space flight experience" in the Gemini program and termed this proof that "man can live and work well in space for twice as long as it takes to fly to the moon and back."

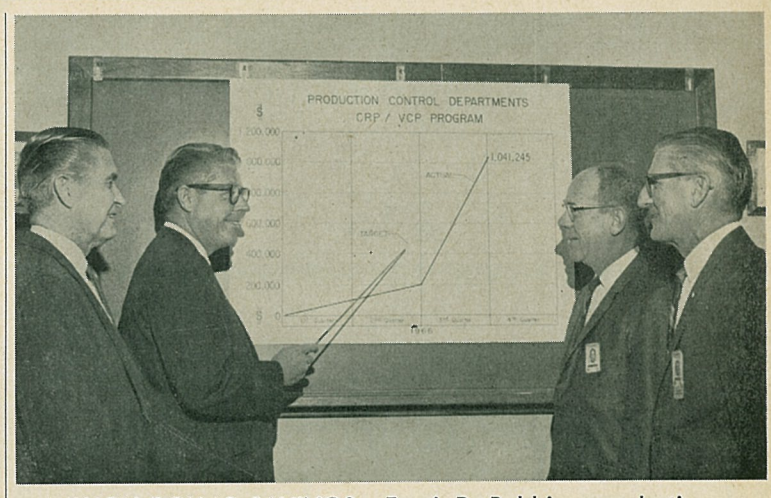
He pointed out that Gemini "has given us America's first operational manned spacecraft—a proven two-man vehicle which is now being adapted for use as a key element in the MOL program of the Department of Defense."

The President expressed the nation's gratitude to the Gemini team and the thousands of men and women in government, industry and universities who played a part in the program.

Other industrial officials present with Bowers to receive awards were Daniel J. Haughton, president of Lockheed Corp.; James S. McDonnell, chairman and chief executive of the McDonnell Corp.; and George M. Bunker, president of Martin Marietta Corp.

The four conferred with the President before the awards ceremony on the "Texas White House" lawn. Secretary of Defense Robert McNamara and Secretary of State Dean Rusk were among officials present.

George E. Mueller, associate NASA administrator for manned space flight, and Charles W. Mathews, Gemini program manager, each received NASA Distinguished Service Medals and Brig. Gen. Paul T. Cooper, commander of the Air Force Space Systems Division, a NASA Public Service Award.



MILLION DOLLAR SAVINGS—Frank D. Robbins, production control Dept. 830 manager, second from left, points out achievement of $1,041,245 cost reduction and value control savings achieved by department. From left: H. L. Williamson, cost reduction rep for operations sections; Robbins, E. D. Bryant, vice president-operations; T. F. McAleer, Dept. 830 coordinator.

Production Control Savings Go Over Million Dollar Mark

More than $1 million in savings for Convair division will be achieved through cost reduction and value control projects initiated this year by employes in a single department - production control, Dept. 830.

Thirty-five in the department submitted 46 proposals during the first nine months this year that have been approved and implemented for estimated annual savings of $1,041,245 for the division.

"I am particularly pleased with the large participation," Frank D. Robbins, manager of the department, stated. "This illustrates what can be accomplished when a group of individuals accept as part of their job the responsibility to reduce costs through improved methods of operation."

The department's original cost savings goal for the year was $477,760 and has been revised to $1,125,000. Its fourth quarter goal is $280,000.

Dept. 830's record cost reduction and value control savings brought the total for all operations departments for the first three quarters of the year to $2,461,000.

Savings being achieved from the Dept. 830 projects result, in part, from rework and use of surplus parts; improved receiving, storing, handling and manufacturing methods; use of cheaper materials for packaging and shipping; consolidation of records, stockrooms and personnel tasks and use of copy machines; and computers for records keeping and reporting tasks.

Personnel whose proposals will bring about the savings are:

Al Amison Jr., A. W. Bailey, R. D. Beare, F. A. Cary, J. F. Chrivia, G. A. Clauder, S. E. Cleghorn, Lee Cox, D. G. Croan, D. M. Dvorak, J. P. Erpenbeck, F. R. Field, G. E. Garrison, M. L. Goodall, A. J. Halyburton, Frank Hockenberger, R. L. Ingraham, R. H. Johnson, J. R. King.

R. W. Landis, D. A. Leever, Al Leth, R. E. Muelchi, H. S. Murphy, D. W. Nordeck, F. J. O'Connor, F. J. Parker, W. J. Quackenbush, R. D. Raines, J. C. Ruzich, T. F. Ryan Jr., John Santos, H. W. Thompson, J. R. Thompson and B. J. Yoakum.

Zero Gravity Study Ordered

(Continued from Page 1)

963-4 will be concerned with test planning.

G. L. Drake of Dept. 592-0 will assist with project supervision and P. V. Smith of Dept. 506-1 and Michael Griggs of Dept. 596-0 will serve as consultants. W. A. Johnson, Dept. 592-0, will be responsible for engineering analysis and J. W. Steadman, Dept. 592-0, will assist with instrumentation.

A literature search will be included in the first task study to eliminate any duplication of effort. Ground-based to orbital flight test methods will be examined and recommendations made on the type of testing considered most appropriate for each ILSS component or process.

Ballinger, a graduate of George Washington University, has been with Convair since 1954 except for a period from 1962 to 1964 when he was employed at NASA's Manned Spacecraft Center in the Gemini project office. He previously has served as supervisor of the Centaur thermodynamics group and as a Convair representative on a General Dynamics' heat transfer and gas dynamics panel.

You can buy U. S. Savings Bonds regularly for as little as 50 cents a week.

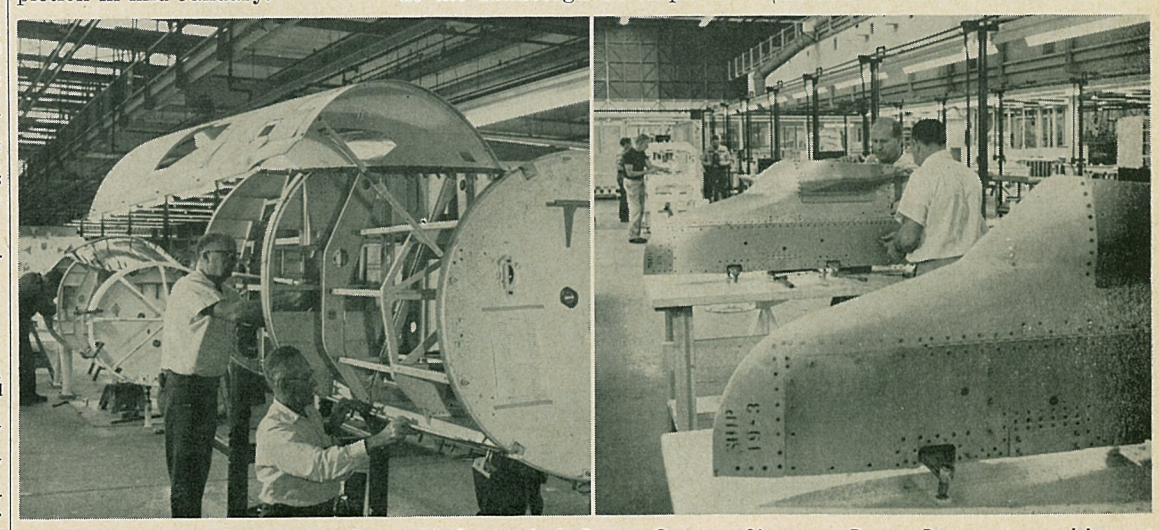
Pylons, Electronics Bay Production Proceeds

(Continued from Page 1)

Preparations are well under way for manufacture of the first ship's set of pivot armament pylons in the new F-111 production area in AF Plant 19's Bldg. 2. The first fixture for the pylon has been completed in Convair tooling and the first major pylon fitting arrived in-plant from Fort Worth last week heading toward start of assembly work this week. This set of pylons is due for completion in mid-January.

H. G. Rote is in charge of all F-111 production work at both Lindbergh Field plant and Plant 19 as Dept. 027 (F-111 assembly) general foreman.

Pylon assembly at Plant 19 is under L. C. Hare, assistant foreman. Stabilization boom work, also in Bldg. 2, Plant 19, is supervised by G. H. Wilson, assistant foreman. T. C. Mitchell is assistant foreman over electronics bay assembly located in Bldg. 3 at the Lindbergh Field plant.



F-111 PRODUCTION—In shot at left, A. J. LeBeau, George Simpson, Roger Brown, assemblers at Convair's Lindbergh Field plant, work on F-111 electronics bay during final stages of completion in Bldg. 3, LF. At right, R. B. Walling and W. D. Arrasmith, skin and structures assemblers, fit access doors on one of first ship's set of armament pylons scheduled for shipment to Fort Worth in near future.

Water-Pressurized Suit Used For Space Studies

Techniques developed by Convair division for water pressurization of space suits and helmets for use in underwater simulation of weightlessness were outlined in a paper recently at a Survival and Flight Equipment Association symposium in San Diego.

Presenting the paper were Richard Wolf and Richard Elling of the division's life sciences department.

Water-pressurized space suits are in certain respects superior for underwater weightless environment studies since they provide realistic approximation of volume and mobility. Extra weighting is not required as in the case of air-pressurized suits.



UNDERWATER WORK—Richard Wolf of Convair life sciences department uses water pressurized space suit in conducting underwater weightless simulation tests of mobility aids.

Major modification in the Convair water-pressurized system is to the helmet, which includes a Convair-developed demand breathing regulator.

Scientists using the system wear a standard flat-lens SCUBA face mask to eliminate distortion through the visor. Inhalation and exhalation gases are routed from the demand regulator through a flexible tube that connects to a standard SCUBA mouthpiece. A standard 72-cubic-foot SCUBA tank is used for breathing air supply.

Water pressure is supplied for the space suit through a hose adapter attached to the ventilation inlet port. Only non-corrosive materials are used in the system and nylon and teflon have been used to advantage.

Convair life sciences personnel earlier this year conducted a series of Company-funded underwater weightless simulation tests on mobility aids for orbiting spacecraft.

Horizontal side rails, vertical side rails and overhead rails placed longitudinally to the subject's direction of travel were included in the evaluation.

The studies indicate continuous handrails are preferable to individual hand-hold devices because they provide maximum flexibility for locating hands or restraint devices at any desired point.

Desirability of handles on equipment and materials to be used in space also was demonstrated.



BLOWING RINGS—Hawaiian Airlines Convair 640, snapped during takeoff from Lindbergh Field, San Diego, some weeks ago on a damp day, made startling photo as propeller tips created circular condensation rings. Each prop has four blades and it appears that each blade tip made its own ring.

Liquid Carbonic Divestiture Plan Provides For Orderly Procedure

General Dynamics Corporation has announced that the terms of a plan of divestiture for its Liquid Carbonic division negotiated with the Department of Justice had been approved by the U.S. District Court for the Southern District of New York.

The Justice Department had filed a civil action against General Dynamics in the District Court in 1962, charging that the acquisition of Liquid Carbonic by General Dynamics in 1957 violated Section 7 of the Clayton Act and Section 1 of the Sherman Act by reason of the leverage that General Dynamics could and did exert to induce its suppliers, through the use of reciprocity, to purchase carbon dioxide and industrial gases from Liquid Carbonic.

The plan of divestiture provides the Company with flexibility to divest itself of the Liquid Carbonic division in an orderly manner by July 3, 1969. A study of the various alternative methods of divestiture will be undertaken immediately.

Sales and earnings of the Liquid Carbonic division have been showing a very favorable trend over the last few years in line with the general trend in the industrial gas industry.

Roger Lewis, president of General Dynamics, said: "We expect to dispose of this operation on favorable terms, and the proceeds will be effectively utilized in the long-term growth of General Dynamics' many other areas of business."

Consolidation of Supply Buying Expected to Bring Big Savings

Work of a new General Dynamics' Reproduction Standardization Committee has resulted in savings of about $180,000 for divisions of the Corporation this year.

H. B. Day, chief of graphic reproduction for Convair division, is chairman of the Corporate group. C. G. Keach, Corporate director of pricing, was instrumental in establishment of the committee and serves as a member.

Other members are C. M. Barlow, Corporate office; C. T. Talbott, Convair; D. A. Austin, Electric Boat; J. Baird, Pomona; C. J. Cottrell, Electronics; L. C. Freeman, Stromberg-Carlson, and M. B. Gross, Fort Worth.

Talbott, purchasing agent for Convair, said savings of $500,000 are projected for next year from plans already established by the committee for standardization and consolidated purchasing of reproduction supplies and equipment.

Formation of the committee several months ago established for the first time a direct line of communication for discussion between reproduction heads for each of the divisions.

Part of this year's savings resulted from transfer of several pieces of surplus reproduction equipment from Convair to Pomona and Corporate Headquarters and arrangements for Electric Boat to handle a considerable amount of microfilming for Fort Worth.

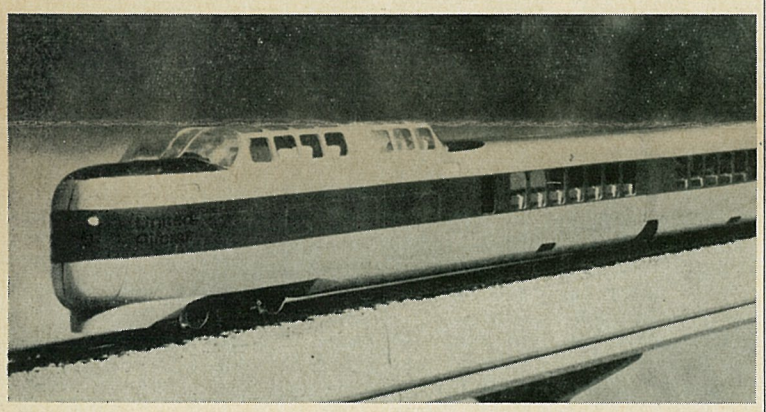
Other savings came from consolidated purchasing of sensitized diazo (blueprint) paper for the divisions.

Talbott said future combined purchasing of reproduction supplies may result in savings of more than 30 per cent over purchase prices being paid by individual divisions for smaller quantities.

One future study planned by the committee will be on feasibility of centralized reproduction control at division level.

Keach is assisting with formation of similar standardization committees in other areas for cost savings, also.

W. J. Stanley, Convair plant engineering manager, is chairman of a standardization committee for industrial lubricants which could save up to 30 per cent.



SPEEDY—Electro Dynamic division will supply generators for 160 mph TurboTrain, designed by United Aircraft, scheduled to speed between New York and Boston and between Montreal and Toronto.

Electro Dynamic Wins Contract Involving 160 mph TurboTrain

A contract to manufacture synchronous electrical generators has been awarded to Electro Dynamic division by United Aircraft Corporate Systems Center, according to Herman Hanink, division general manager.

The generators will be used to supply all non-propulsion power on United Aircraft's revolutionary 160 mph turbine-powered TurboTrain, such as auxiliary power for heating, lighting and air conditioning, etc.

Electro Dynamic's synchronous generators are 300-kw, 460-volts, 3-phase, 60-cycles, drip-proof design that rotate at 3,600 rpm. They feature a novel two-pole rotor design and offer the advantages of space and weight savings over conventional generators. Their sturdy design has evolved from Electro Dynamic's experience with high speed rotating electrical machinery for the U. S. Navy's nuclear submarines.

Seven complete TurboTrains are on order — two for the U. S. Department of Commerce to operate between Boston and New York and five for the Canadian National Railways to operate between Montreal and Toronto.

People Mobility

Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

ALFONSE J. CATALANO (1953) from Electronics, San Diego to manufacturing control coordinator, Convair division; **J. D. PHELAN** (1961) from Electronics, San Diego to Corporate Headquarters; **ASHFORD C. GREELEY** (1960) from Electronics, San Diego to Convair as senior electronics engineer; **JACOB B. HENN** (1963) from Convair to staff assistant, Pomona; **DAVID C. CADY** (1961) from Convair to senior design engineer, Electronics, San Diego; **JOHN STEIBEL** (1959) from Convair to General Atomic; **JOHN M. CORRIGAN,** from Corporate Headquarters to Electric Boat as senior financial analyst; **ANDRE M. ROBERGE** (1956) from Canadair to senior thermodynamics engineer, Convair; **JOHN L. SINNOTT** (1955) from Electronics, San Diego to Convair as program analyst; **JOHN M. STOFFEL** (1954) from Stromberg-Carlson (Ardmore) to manufacturing control coordinator, Convair; **JAMES P. SULLIVAN** (1953) from Convair to 111 logistic support, Fort Worth; **MELVYN G. HOLLEB** (1960) from Convair to 111 logistic support, Fort Worth; **CLIFFORD E. DIETZ** (1946) from Fort Worth to Convair as senior design engineer.



CORPORATE PARLEY—Members of General Dynamics Reproduction Standardization Committee gathered at Convair division, San Diego, early last month are, from left, Carlton Barlow, Corporate Headquarters; Dave Austin, Electric Boat; C. G. Keach, Corporate Headquarters; H. B. Day, Convair; C. J. Cottrell, Electronics-Rochester; M. B. Gross, Fort Worth division; John Baird, Pomona division; Carl Fimmano, Electronics-Rochester; Roger Christ, General Atomic; T. H. Pezzulo, Quincy division: L. M. Hanson, Electronics-SD; C. T. Talbott, Convair. Discussion involved broad coordination program.



FINNAIR VISITORS—Officials from Finnair, Helsinki, Finland, were at Convair's Lindbergh Field plant in mid-November to learn of Convair's present and future commercial aircraft plans. From left are Heikki Soininvaara, Finnair vice president of finances and economics; Gunnar Korhonen, Finnair president; Carl Stude, Finnair chief of engineering; L. J. Bordelon, Convair manager of commercial customer requirements; and W. L. Van Horn, Lindbergh Field operations plant manager.

Short Range Attack Missile Being Developed For FB-111

A short-range attack missile (SRAM) is being developed for use on the FB-111 strategic bomber.

Boeing Company was recently awarded a $142 million contract to design and develop the supersonic air-to-ground missile, which has nuclear capability. Boeing will be assisted by Fort Worth division, an associate contractor.

A new contract was given to General Dynamics to design and incorporate SRAM provisions for the FB-111 and to support the research, development, testing and evaluation program of SRAM.

SRAM will be capable of penetrating sophisticated enemy defenses after launch from the variable-wing bomber.

Boeing's Missile and Information Systems Division in Seattle will be responsible for carrying out the SRAM assignment. The program is being managed by the Aeronautical Systems Division of the Air Force Systems Command, with headquarters at Wright-Patterson AFB in Dayton, Ohio. Col. Joseph Green is director of SRAM system program office.

Fort Worth division's part in a recent year-long competition between Boeing and Martin Co. for the contract was headed by Jim Goodman, SRAM project director.

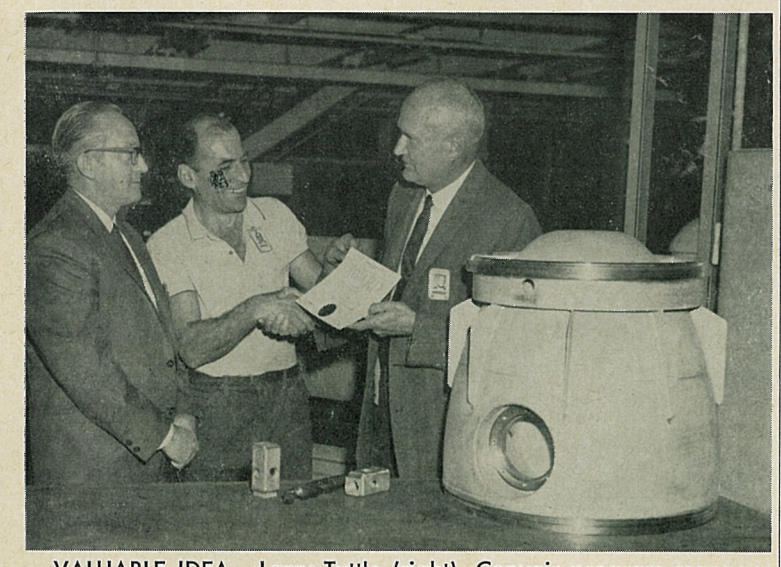
'Step Drill' Idea Nets $685 Check

Nicholas L. Valentino, milling machinist in Convair's Dept. 717 at Air Force Plant 19, has been awarded a $685.50 employe suggestion check and a commendation certificate for an idea that saves time by combining five drilling operations into one.

Valentino previously used five separate drills for one of the production operations on the cage assembly for Navy Mark 56 mine assemblies.

He reasoned there should be an easier way and found that it was feasible to have a specially fashioned "step drill" to combine the work.

Convair division is manufacturing 1,061 mines from non-magnetic steel for the Navy under a $2.6 million contract from the U. S. Naval Ordnance Plant in Louisville, Ky.



VALUABLE IDEA—Larry Tuttle (right), Convair program manager for Mark 56 mine assemblies, presents $685 Employee Suggestion award to N. L. Valentino, milling machinist at Air Force Plant 19. William Valentine (left), assistant foreman for Dept. 717, offers congratulations. Large assembly at right is explosive section for mine.

Boldrick Returned To Review Board

E. H. Boldrick, chief of Convair division's still photo Dept. 125-0, has been reappointed by Mayor Frank Curran for an additional one-year term on San Diego's five-man Board of Architectural Review. Boldrick has been serving on the board since 1963.

The board establishes minimum archirtectual standards, including those for fences, roofs and business signs, reviews plans for private and commercial construction that may not meet established standards, and approves plans for all new city building projects.

First Holiday Affair Set For Electronics

First annual holiday affair for all Electronics-SD people and their guests will be a dinner-dance Dec. 23 at the Hilton Inn on Mission Bay.

Social hour is at 7 p.m., followed by dinner at 8, and dancing to Buster Carlson's orchestra from 9 p.m. to 1 a.m.

Tickets at $3.50 per person are available from Electronics-SD departmental representatives.

Convair Folk Contribute to Xmas Funds

Convair division employes across the country are helping to make Christmas a happier occasion for hundreds of needy families in the areas in which they live and work.

A grant of $2,500 has been made to the Salvation Army in San Diego by Convair Employes' Con-Trib-Club for its Christmas programs.

Employes at the Eastern Test Range for the eighth year are collecting toys, food, clothing and cash contributions for needy families in that area.

ETR employes are donating many manhours during off-duty time to repair and paint used toys and distributing family packages.

Coordinators for the ETR Christmas Fund are A. J. Traum, leadman in Dept. 979-3, and Frank Sturgill, a senior calibration technician in Dept. 979-4.

Convair employes at Western Test Range through the Con-Trib-Club have given $500 to support "Operation Big Brother," Christmas party held annually at Vandenberg AFB for underprivileged children, and $500 to the Salvation Army.

Score Attending Series of Lectures

More than 20 selected personnel from Convair's advanced ICBM organization in military space programs, Dept. 115, are attending a series of 11 weekly presentations on operations research, synthesis and systems engineering from 4 to 6 p.m., Tuesdays in a Bldg. 33 conference room at Kearny Mesa.

The training course, organized jointly by advanced ICBM and educational services Dept. 130-3 personnel, is designed to acquaint management personnel with latest technical developments and is part of the division's Management Upgrade program.

Among speakers are Dr. Blaine Parkin, director of systems analysis; Dr. Robert Leger, manager of information systems; and Fred Breuer, aeroballistics group engineer.

Harry Mellinger of Dept. 115-0 and Don Olsen of Dept. 130-3 are coordinators.

Harry Dillon Earns Special AIAA Award

Harry T. Dillon, chief of advanced applications for Convair launch vehicle programs at Kearny Mesa, last month received a special recognition award from the Alabama section of the American Institute of Aeronautics and Astronautics (AIAA) at ceremonies in Huntsville.

Dillon was manager of General Dynamics' Huntsville office from 1959 to 1964 and served as first chairman of the Alabama AIAA section.

Convair, Lockheed Clubs Hold Dance

About 500 members of the Convair and Lockheed Management Clubs at Vandenberg AFB and wives attended a joint Christmas dinner meeting and dance Saturday (Dec. 10) in the convention center at the Santa Maria Fairgrounds.

Ray T. Blair Jr., assistant to the Convair division general manager, spoke on "For Better or for Worse" at the dinner. Couples danced until 1 a.m.

Cafeterias Planning Christmas Luncheon

A traditional "Christmas" luncheon of turkey with trimmings will be served Wednesday, Dec. 21, at Kearny Mesa and Lindbergh Field cafeterias. Cost will be $1.10.

Gil Hutter, Kearny Mesa cafeteria manager, said the luncheon will include turkey, dressing, giblet gravy, mashed potatoes, cranberries, pumpkin pie and choice of beverage.



HOME AGAIN—Convair's Warren Hoover and Lee Bettis are greeted by Guard Joe Card as they drive Convair's mobile oceanographic data acquisition center (converted Greyhound bus) into Lindbergh Field plant last Wednesday morning after three years in service on East Coast with oceanography data-gathering prototype buoy, "Bravo," developed for Office of Naval Research.

Special Achievement Award Presented to Convair by SSD

USAF Space Systems Division last week presented a special achievement award to Convair division for "outstanding performance and successful completion of its many responsibilities in the nation's Gemini program."

The award by Brig. Gen. Paul T. Cooper, SSD commander, was made at a "gathering of tigers" dinner meeting commemorating completion of the Gemini program and attended by six Convair officials and their wives in the SSD Officers Club, Inglewood, Calif.

Present were Jack L. Bowers, Convair general manager; Andrew Kalitinsky, launch vehicle programs assistant director-engineering; Richard W. Keehn, Atlas SLV program manager; Karl Kachigan, launch vehicle programs chief engineer-analysis and development; C. W. Blakey, contracts director; and L. I. Medlock, reliability control director.

Bowers was seated at the head table with Gen. Cooper and key executives of other major Gemini program contractor firms. Keehn, who had responsibility for Convair's Atlas target boosters for the Gemini program, accepted the award for the division.

Col. Joseph L. Hamilton, SSD deputy for launch vehicles, was master of ceremonies.

Tickets Now on Sale For Fiesta; $300 in Awards For Costumes

Tickets went on sale this week for Convair Management Club's gala New Year's Eve Fiesta Dance which will see $300 in cash awards going for outstanding Early California costumes.

The annual year-end event, to be Dec. 31 in the Community Concourse Ballroom, will feature the Early California Fiesta theme with everyone encouraged to attend in costume. However, costumes are not compulsory.

Sweepstakes prize of a $50 U.S. Savings Bond will go to the best costume, selected by the panel of judges from the San Diego Bicentennial Committee and civic leaders.

Winner in each of the following categories will receive a $25 U.S. Savings Bond: Ladies' Fiesta Dress, Spanish Don, Mexican Girl, Leather Jacket Soldier, Yankee Sailor, Dance Hall Girl, Padre, Indian Woman, Indian Warrior.

Best Pioneer Woman's garb will be rewarded with two tickets to the Mission Luna de Alcala Fiesta, $25 in value.

Doris Parker of Convair Dept. 860-0 heads the costume contest committee. Other members, all wives of Management Club members, are Mrs. J. Monroe Jones, Mrs. J. R. King, Mrs. Clarence Strand, and Mrs. J. C. Reed.

Entries in the contest must be mailed to Mrs. Parker, Zone 860-01, Lindbergh Field, by Dec. 29.

Information on costumes—where to obtain them, price, and pictures of suitable outfits—is available from Mrs. Parker, ext. 583, or Manuel Mosely, ext. 559, both at the Lindbergh Field plant.

Boosters at all Convair plants are selling dance tickets at $7 per couple.

Buster Carlson's Ten Plus One orchestra will play for dancing from 9 p.m. until 2 a.m.

The dance is sponsored by departments at W. L. Van Horn's Lindbergh Field operations.

Fire Chief Cautions No Xmas Lights

Convair personnel have been reminded by D. D. Dimmitt, division fire chief, of the following regulations for Christmas trees and decorations:

No lights or wiring will be permitted on any tree except those erected by plant maintenance and no combustible decorations will be permitted on any tree.

Candles for decoration must not be lighted.

All trees except those erected by maintenance should be removed from all buildings by the end of the holiday season.

Deadline Tomorrow For Holiday Dance

Stromberg-Carlson Data Products employes and their guests will gather for their annual holiday dinner-dance Dec. 17 at the Elk's Club in El Cajon.

Social hour begins at 6:30 p.m. with dinner at 7:30. Dancing will follow from 9 p.m. to 1 a.m.

Tickets are $1.50 each for employes and dependents; $3.25 per person for guests.

Deadline for purchase of tickets from departmental representatives is tomorrow (Dec. 15).

BOOKS ON SALE AT THIRD OFF

A limited quantity of Richard Pourade's books on early San Diego history are on sale at $7 each—a 33⅓ per cent discount—at employe services offices at Kearny Mesa and Lindbergh Field.

CORRECTION

An artist's drawing that appeared on Page 3 of the Nov. 30 San Diego edition of General Dynamics News was erroneously identified as from early studies of a "winged Atlas." The drawing actually depicted a proposed, large, near-term, reusable booster that evolved from a recent study conducted by Convair for the USAF Space Systems Division.



COMMENDATION AWARD—Maj. Lonnie Rowin (left), Air Force officer in "Education with Industry" program of Convair, receives Air Force Commendation Medal certificate from Col. Miles R. Palmer of Air Force Institute of Technology (right), and Col. James R. Ourand, Defense Contract Administration Services plant representative. Award is for his service on previous duty assignment.

Major Assigned to Convair Cited For Procurement Work

Maj. Lonnie J. Rowin, one of four officers spending 10 months with Convair division under the Air Force Institute of Technology's "Education with Industry" program, recently was presented an Air Force Commendation Medal certificate in ceremonies at the Kearny Mesa plant.

The medal, which he will receive in the near future, and related certificate were for meritorious service while Rowin served as chief of the procurement division for the 314th Combat Support Group at Sewart AFB, Tenn., from Sept. 25, 1962, to July 31, 1966.

"During this period, Maj. Rowin's outstanding knowledge, leadership abilities and professional skills in the field of procurement caused this function to be continually rated outstanding," the award citation said.

Rowin, a native of Colorado, holds a bachelor's degree in marketing from the University of Arkansas and a master's in management from the University of Colorado.

Dunn to Head ABRES Office

An Atlas ABRES program integration office has been established in Convair division's launch vehicle programs organization at Kearny Mesa to aid the Air Force in direction of the Atlas ABRES (Advanced Ballistic Re-Entry Systems) program.

C. J. Dunn heads the new office, reporting to Grant L. Hansen, vice president-launch vehicle programs. He will be assisted by B. J. Wierzbicki at Norton AFB and F. X. Marshall at Kearny Mesa.

The Atlas D/E/F program office under W. F. Miller will continue management responsibility for all Convair D, E and F programs except for the ABRES programs under Dunn's direction.

An Atlas D/E/F systems integration function has been established within launch vehicle engineering to carry out systems engineering and technical integration activities. E. R. McFadden heads this function, reporting to Andrew Kalitinsky, assistant program director-launch vehicle programs.

The launch vehicle engineering-configuration management and documentation organization, formerly headed by Marshall, has been combined with launch vehicle engineering-test operations in a single unit called launch vehicle engineering operations with C. G. Congdon as manager. Congdon also reports to Kalitinsky.

Combined Systems Test Stand (CSTS) activities have been transferred to launch vehicle programs-manufacturing operations under R. G. Daly, manager.

Personnel Briefed On New Computers

Selected engineering personnel from Convair division are attending a series of after-hours lectures on third-generation computers being given by representatives of computer manufacturing firms in the Bldg. 2 presentation room at Kearny Mesa.

Presentations by UNIVAC representatives are scheduled from 4:30 to 6 p.m. today and by Control Data Corp. representatives from 4:30 to 6 p.m. Dec. 19. Presentations by General Electric and IBM have been held previously.

Gun Club Holiday Shoot To Be Dec. 18

CRA Gun Club's annual merchandise holiday shoot will be this coming Sunday (Dec. 18) at Gillespie Field Range.

Trap and skeet shooting for prizes begins at 8 a.m.

Winners will take home hams, turkeys, chickens, and articles of hunting equipment.

Data Products Challenge Told

The most tangible and positive method to build for the future while improving present performance is to upgrade competence of management personnel, Tom Worthy, vice president-industrial relations of Stromberg-Carlson, told the Data Products Management Club in San Diego Dec. 8.

Noting that Data Products is in a dynamic market with products that tie the computer to the public, he said this operation's challenge was whether it could meet the growing demands of customers.

"Microfilm is no longer an archival storage media," he said. "It's dynamic; it's usable.

"With undiscovered applications, unlimited customer interest and an opportunity to exploit a technological lead over competitors, you people will be under great pressure. This will require that you grow not only for today but to meet the future . . .

"Our future rests on our competence," Worthy said. "That's why it is necessary that we have on-going plans of action to upgrade ourselves and to upgrade those working with us."

Is Address Right On Paycheck Stub?

Payroll checks for both hourly and salaried Convair division employes to be distributed Dec. 29 for the pay period ending Dec. 25 will reflect final figures to be included on 1966 W-2 forms.

J. L. Terrien, payroll supervisor, asks each employe to check his check stub to make sure both his Social Security number and home mailing address are accurate.

Address changes may be reported on forms (A-3743) available at time clocks. Errors in Social Security numbers should be reported at once to the employment section.

ATS-B Launch On the Nose

Applications Technology Satellite-B, boosted into space from Cape Kennedy last week by Convair division's Atlas SLV-3 No. 5101, will spend Christmas over the Christmas Islands as it begins three years of in-orbit duty in bringing "practical benefits from space technology to mankind."

The ATS-B has been "parked" in a synchronous orbit more than 22,000 nautical miles over the Christmas Islands south of Hawaii and near the 150th meridian and will relay information for three years from a variety of onboard experiments.

Convair's Atlas functioned flawlessly as it boosted the Agena second stage vehicle and 1,542-pound ATS-B from Complex 12 at the Eastern Test Range. The launch was the 315th Atlas launch and the first for Thomas C. Chitty as launch conductor and Complex 12 site manager.

W. J. Hammond, Convair site support group engineer at Kearny Mesa, said there was no anomalies in the countdown or flight and liftoff was within one second of opening of the launch window.

Camera Club Slates Annual Dinner Dec. 18

CRA Camera Club will combine its December meeting with the club's annual year-end dinner Dec. 18 at Waibel's Restaurant, 877 Hornblend St., Pacific Beach.

The fourth quarterly contest and slide-of-the-year contest will be held following the 5:30 p.m. dinner.

Members who wish to enter slides in the quarterly contest, but can not attend the dinner, may mail their entries, properly identified and titled, to Ken Rinker, 4433½ North Ave., San Diego.

Price of the dinner is $2 each for club members and $3 for non-members or guests. Reservations must be made by today (Dec. 14) through A. C. Oehler, 1420 Law St., SD, 92109.

Adventurers Plan Jaunt to Sonora

George Leach, Borrego State Park ranger, will show slides and talk on flora and fauna of the Gran Disierto-Pinacate region in Sonora, Mexico, at a meeting of CRA Adventurers at 7:30 p.m. Dec. 21 in CRA Clubhouse auditorium.

Adventurers plan a trip to the area Dec. 30 through Jan. 2. Ray Madden and Jorge Zorrilla will be trip leaders.

A one-day family field trip also has been scheduled by Adventurers Dec. 17, to the Boulder Creek-Eagle Peak area 19 miles east of Lakeside. Dick Bowen will be leader, with Hal Nicholas as assistant.

Rockhounds to View Puppet Show Tonight

Marie Hitchcock, the "puppet lady," will entertain CRA Rockhounds and their friends with a holiday Marionette Revue tonight (Dec. 14) in the CRA Clubhouse Auditorium, Kearny Mesa, at 7:30 p.m.

Everyone is welcome to the showing and the Christmas party following. Refreshments will be served and gifts exchanged. Gifts are to be limited to $1 in value and chosen by the giver as suitable for someone his own sex and age.

Leo Heyob Elected Head of Rail Club

Leo Heyob has been elected president of the CRA Railroad Club.

Other officers are Al Kent, vice president; Don Dwyer, secretary, and Gordon Alcott, treasurer.

CRA Calendar

(For information on CRA activities call CRA Headquarters, ext. 1111 Kearny Mesa. Deadline for next issue of GD/NEWS is Jan. 4. Call ext. 1071 LF, or ext. 3322 KM.)

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ADVENTURERS—Field trip to Boulder Creek-Eagle Peak area Dec. 17. Meeting Dec. 21, 7:30 p.m. CRA Clubhouse. New Year's trip to Gran Disierto, Sonora, Mexico, Dec. 30-Jan. 2.

BADMINTON—Play Mondays, 7-10 p.m., Federal Bldg., Balboa Park.

BASKETBALL—Slow-break and fast-break league play suspended Dec. 18-Jan. 3.

BICYCLE CLUB—25-mile ride to Torrey Pines Park Dec. 17. Depart from North Clairemont Square 8:30 a.m.

BRIDGE—Christmas dinner Dec. 22, 5:30 p.m., Miramar Officers' Club.

CAMERA CLUB—Year-end dinner and 4th quarterly contest Dec. 18, 5:30 p.m., Waibel's Restaurant, Pacific Beach.

CERAMICS—Meetings Tuesdays and Thursdays, 7-10 p.m., CRA Clubhouse.

CHESS—Play Wednesdays, 7:30 p.m., CRA Clubhouse.

COINEERS—Christmas gift exchange Dec. 21, 7:30 p.m., Convair cafeteria, Lindbergh Field.

FENCING—Workouts and instruction Fridays, 7:30-10:30 p.m., YWCA, 10th & C Sts.

FISHING CLUB—Meeting Dec. 20, 7:30 p.m., Gillespie Field Clubhouse.

GOLF—Entries open to Dec. 23 for CRA tourney Jan. 7-8 at Coronado. Call ext. 1111 KM.

GUN CLUB—Annual merchandise shoot Dec. 18, 8 a.m., Gillespie Field Range. Entries open for Big Game Drawing. Forms at all employe services outlets.

ICE SKATING—GD skate nights Thursdays, 6:15-7:45 p.m., Mission Valley Ice Arena.

JUNIOR SCIENCE—Meeting and entertainment Dec. 16, 7:30 p.m., CRA Clubhouse.

RIDING CLUB—Christmas dinner Dec. 17, 7 p.m., Torrey Pines Inn.

ROCKHOUNDS—Annual Christmas party tonight (Dec. 14), 7:30 p.m., CRA Clubhouse auditorium.

TRAILERS—Road Runners Christmas party Dec. 22, 7:30 p.m., CRA Clubhouse.

Pam Harless and Chris Jackson Star in Riding Club Fun Show

Riding trophies went to Pam Harless and Chris Jackson for performance in equitation and gymkhana classes at CRA Riding Club's all-day fun show Nov. 20 at the CRA ring.

Pam outpointed Jan Kreis, runner-up in equitation events, by two points. Pam's overall score was 16, Jan's, 14.

Chris garnered 21 points in the afternoon's gymkhana contests. Jan Kreis, Mike DeLeonardo, and Davy Watson tied with 17 for second.

Gretchen Tank of Lakeside judged equitation events in the CRA group's last show of the year.

Boyd Spencley was in charge as showmaster with Conrad Nash assuming ringmaster duties. Timers were Henry Geer Sr., Judy Watson, and Gayle Dvoracek. Announcing were Jay Harmer and Henry Geer Jr.

CRA club members and their families will gather for a Christmas dinner Dec. 17, 7 p.m., at Torrey Pines Inn. Trophies for the year will be presented during the evening.

Dinner reservations must be in by today (Dec. 14) to Annette Spencley, home phone 276-3954.

Fred Stone Elected Road Runner Head

Fred Stone will head the CRA Road Runners group following election of officers Nov. 17.

Mrs. Ed Wawrzynski is new vice president and Mrs. R. S. Lathrum, secretary-treasurer.

The group's annual Christmas party will be Dec. 22, 7:30 p.m., in the CRA Clubhouse. All are to bring a grab-bag gift.

Mrs. Wawrzynski is party chairman and Mrs. Carl Monds and Mrs. Howard French, co-chairmen.

Road Runners plan a Jan. 13-15 outing to Martin's Trailer Park in Carizzo Gorge.

Coineers to Hold Christmas Party

Convair Coineers will celebrate the holiday season at their annual Christmas party Dec. 21, 7:30 p.m., in the Convair cafeteria, Lindbergh Field.

Herb Rubottom will enliven the evening with musical entertainment. Three turkeys will go as door prizes in a "members only" drawing. Other door prizes will be two Guide Books of U.S. Currency and Modern World Coins book. Raffle prizes are five silver 1878S dollars and three magnifying glasses.

Gifts will be exchanged.

Emersons Win Bridge Club Play

Ralph and Isabell Emerson took first place in CRA Bridge Club play under the Howell system Nov. 25 at the CRA Clubhouse. Fred and Joan Nickerson were second, Tony and Jody Miller, third, and Jim Stephenson and John Christy, fourth.

The club will have a Christmas party at 5:30 p.m. Dec. 22 at the Miramar Naval Air Station officers' club.

Golf Tourney Slated Jan. 7-8 at Coronado

CRA will sponsor a golf tournament for employes Jan. 7 and 8 at Coronado. Starting times may be reserved tomorrow through Dec. 23 by phoning KM ext. 1111.

Torrey Pines Trip Slated by Cyclists

CRA Bicycle Club members will take a 25-mile ride to Torrey Pines State Park Saturday (Dec. 17). The group will meet at the North Clairemont Square at 8:30 a.m. and 10-speed bikes are recommended.

Further information can be obtained from Alan Conolly, trip leader, at LF ext. 701 or 273-5117.

The club plans a 25-mile ride to Mission Bay on Jan. 14 and a 50-mile ride to Tijuana Jan. 28.

Hunters May Enter Kills For Drawing

Big game hunters may enter their kills now to be eligible for the annual Big Game drawing, sponsored each year by the CRA Gun Club, Commissioner Jack Swank announced.

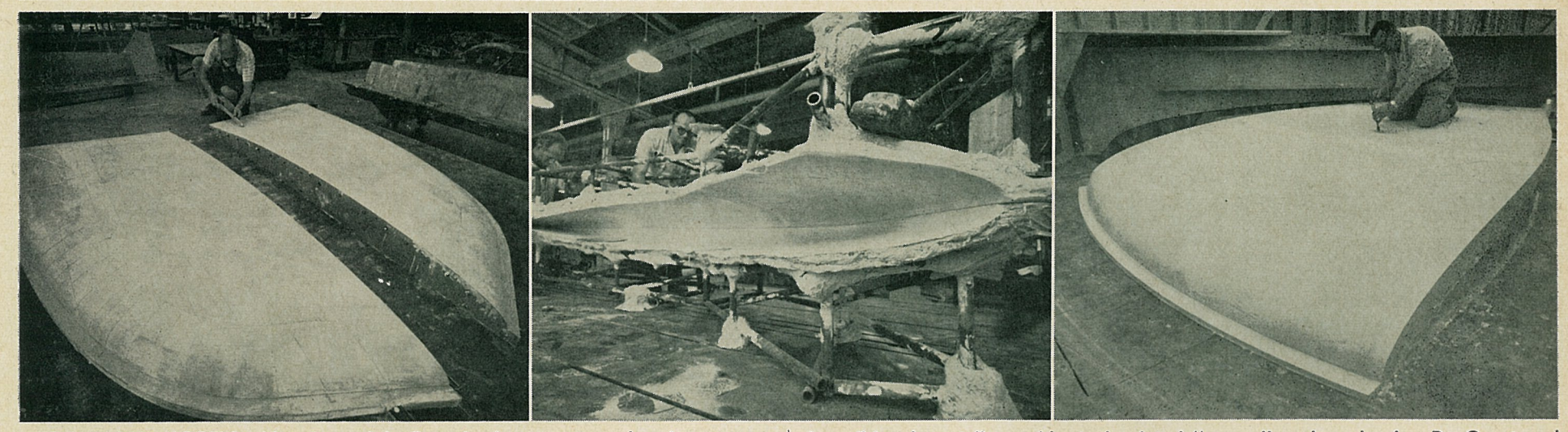
This year's drawing will be held Jan. 18.

Forms are available at all Convair, Stromberg-Carlson, and Electronics employe services outlets, with all GD people and members of their immediate families eligible to enter.

Basketball Teams Play Opening Games

R and E defeated Flight Control 53-37, Underbrush outscored the Hot Shots 56-29 and Centaur edged Cosmo Bums 27-23 in the first round of CRA fast-break basketball season play at Municipal Gym in Balboa Park.

In initial slow-break play, the Lindbergh Field Jets topped Gyros 29-20, Bean Counters squeezed by Bullet Biters 24-22 and Plastics outpointed Stromberg-Carlson 24-22 in an overtime period.



C-5 MASTER MODELS—Now in work in Convair plaster pattern shop in preparation for use as patterns for detail tools are master models of C-5 empennage components (from left): horizontal stabilizer tips on which Carl Core (Dept. 401-1) is scribing layout lines with steel-pointed "mouse" and angle; Jan De Groot and Carl Stringfield bolting together halves of mold for stabilizer tip leading edge for check fit; Barney Smigielski putting finishing touches on chin fairing model.

Composites of Boron Studied For Aircraft

A carry-on study to determine the air-worthiness of boron-epoxy composite structures is in the early stages at Fort Worth division. The program is valued at over $3 million.

In the original seven-month study program, completed in October, Fort Worth engineers successfully completed tests on two boron composite F-111 horizontal tail sections.

In the carry-on program, scheduled to last 30 months, boron composites will be qualified for use on aircraft hardware.

The lightweight and tough composite is currently being considered for four F-111 components: horizontal tail, wing trailing edge panel, air deflector door, and nose landing gear door.

Fort Worth, which has primary responsibility for the studies, is being assisted by Texaco Experiment Inc. and Illinois Institute of Technology Research in studies of composites and filaments.

In the first study, valued at over $400,000, two-thirds scale F-111 horizontal tails were tested at both Fort Worth and at Wright-Patterson AFB.

The test specimen reached 89 per cent of its calculated design load capability at Fort Worth. "This is an excellent achievement," said C. W. Rogers, program manager for the boron studies, "especially since this was the first such specimen to be tested."

In the fatigue test at Wright-Patterson, the specimen lasted the equivalent of four life cycles of an F-111.

"In the advanced study, we'll extend the technology to the total airframe," Rogers said. "This includes technology base studies in micro-mechanics, macro-mechanics, plastic matrix parameters, and establishment of a full set of design properties for the material selected for final design."

A boron-epoxy composite structure is considered potentially ideal for aircraft components because of its strength-to-weight and modulus-to-weight characteristics — its lightness and stiffness.

Boron fiber in epoxy matrix, for example, is about 2½ times as strong and nearly 3 times as stiff as aluminum.

"It is this great balance of strength and stiffness which gives the composite its great potential," Rogers said.

The F-111 horizontal tail is considered an excellent component for testing, since it is flutter-critical and thus must be designed both for stiffness and strength.

"Substitution of boron-epoxy composite with strengths previously shown for the aluminum skins yields a 32 per cent weight savings," Rogers said. "Because the resulting surface is lighter and stiffer, an additional weight saving can be realized in the supporting structure."

Pentagon Briefed On Boron Studies

A report on "Advanced Composite Aircraft Application" was presented at the Pentagon recently by C. W. Rogers, program manager for boron studies at Fort Worth.

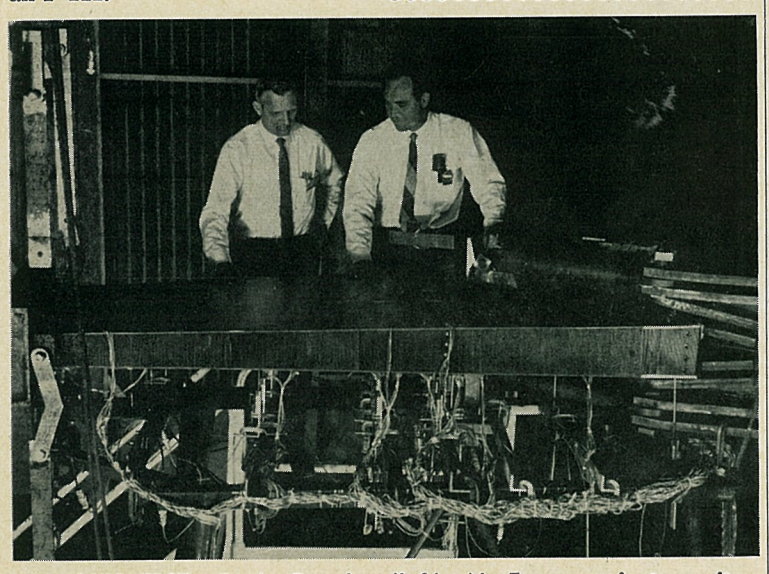
Considered a "major status report," Rogers' presentation stressed results of Fort Worth division's first-stage studies on boron composites.

Col. Bernt Balchen New GD Consultant

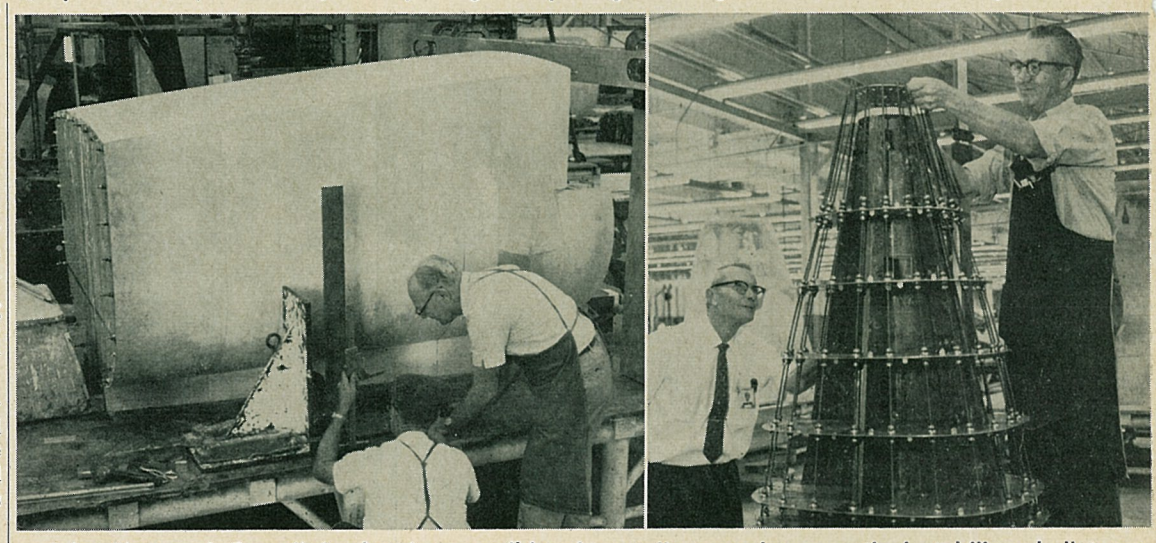
Col. Bernt Balchen, USAF (ret.), widely known pioneer airman, who flew for Admiral Byrd's trans-Atlantic trip in 1927 and across the South Pole in 1929, has joined General Dynamics at Corporate Headquarters as a part-time consultant.

Colonel Balchen is attached to the engineering and program development staff and is available for consultation in matters of aerospace, ordnance, vehicular and marine engineering and geography cold-weather problems etc.

Many times decorated, Colonel Balchen flew for the RAF during WWII, as well as the Norwegian Air Force and the Finnish Air Force.



PASSES TEST—P. A. Parmley (left), Air Force project monitor, and C. W. Rogers, manager for boron program, review testing of two-thirds composite boron F-111 horizontal tail section at Fort Worth division.



John Platt and Core (left photo) are scribing layout lines on large vertical stabilizer bullet section; Al Benesch setting templates for forward nose of bullet under supervision of Louis Farrington, Dept. 401-1 assistant foreman, at right.

Tooling Gets Under Way at San Diego For C-5 Empennage Manufacture

Convair division at San Digeo is in the process of building up tooling for the C-5 empennage program, heading for production shortly after the first of the year.

Over 5,000 tools will be needed for the detail parts and assembly of the huge empennage which Convair will be constructing at the Lindbergh Field operations for the Air Force cargo jet transport under subcontract from Lockheed-Georgia Co., prime contractor.

Over 500 workers will be employed in tool manufacturing, and another 100 in tool engineering, as tooling peaks in early March, E. H. Damarus, Convair chief of tooling at Lindbergh Field plant, said.

Master models for 12 major detail components are nearing completion in the Bldg. 7 tool manufacturing area, from templates numerically programmed and cut on the division's numerical controlled milling machines.

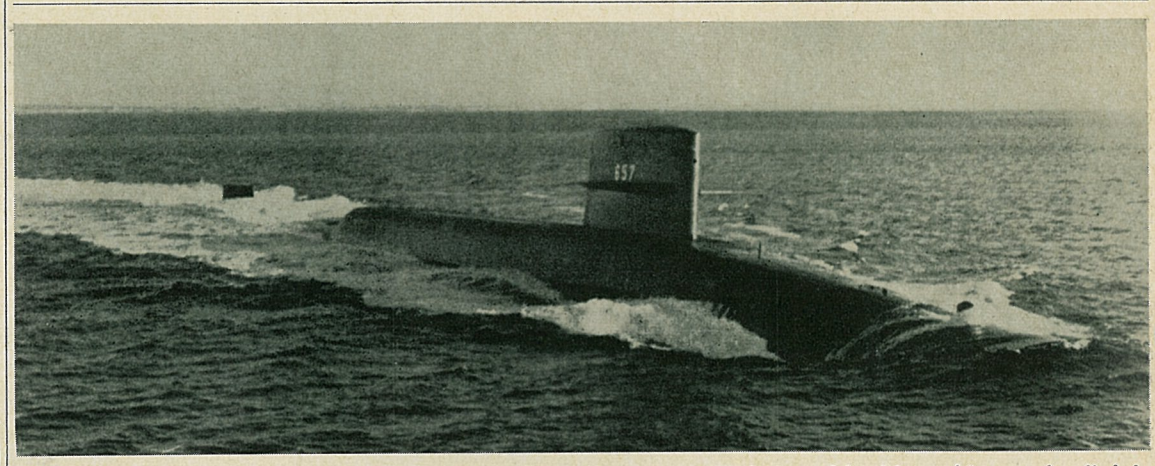
Layout lines for engineering data—such as water lines, station lines, hole patterns, etc., now are being scribed on the models from engineering data.

Plaster or plastic detail patterns and molds for individual detail tools will be cast from the models starting this month, and, from these, stretch forms and drop hammer dies will be cast up in the foundry.

These casts serve as molds for fabrication of plastic and metal tools for detail parts of 12 major sections—seven for the horizontal and vertical stabilizer bullet, three for the vertical stabilizer, and two for the horizontal stabilizer.

Earl Wesp, foreman of templates, form blocks, plaster, plastics, and foundry, is responsible for the Bldg. 7 tool manufacturing area, under N. L. Jones, general foreman of tool manufacturing at Lindbergh Field plant.

Also in work in Lindbergh Field's tool and die area are spar mill tools, and machining tools. Basic structures for major component fixtures are in work in jigs and fixtures area.



IN THE NAVY—Polaris submarine Francis Scott Key was commissioned by Navy this month, slightly less than two years after start of construction. The 39th missile-firing submarine to join fleet, Francis Scott Key was built by Electric Boat division, Groton, Conn. Launched in April of this year, 7,000-ton, 425-foot ship is designed to fire 2,500-mile-range Polaris A-3 missile.

Stromberg-Carlson Soundly Based Business, Lewis Tells Mgt. Club

"We're in the vanguard of those who can grow and prosper," Roger Lewis, president of General Dynamics, told the Stromberg-Carlson Management Club in Rochester at its first dinner meeting.

Stromberg-Carlson is a soundly based business and makes things people need, Lewis pointed out, noting that it is twice as large as five years ago with twice the sales volume. He said that this type of growth was still possible provided Stromberg-Carlson continued to manufacture competitively and to sell with a sense of the market.

"The U.S. is a powerful, growing, surging giant, and technology is in a fantastic growth cycle. People will make use of the products resulting from this growing technology. Stromberg-Carlson sits on that interface between technology and the people, and the Company's future thus is bright."

He noted that business in general is on three legs: one leg is the competitor, another is the customer, and third is competence. Every individual, he said, has a responsibility, and the competence of people is what separates companies. A company, Lewis said, is no better than the people and how they work together.

"You have a marvelous business," he said. "It is up to you. We hope you see the opportunities and if you do you'll get the kind of support you deserve."